SERVICE MANUAL

M860TU



notebook

Notebook Computer

M860TU

Service Manual

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Version 1.0
July 2008

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About this Manual

This manual is intended for service personnel who have completed sufficient training to undertake the maintenance and inspection of personal computers.

It is organized to allow you to look up basic information for servicing and/or upgrading components of the ***M860TU*** series notebook PC.

The following information is included:

Chapter 1, Introduction, provides general information about the location of system elements and their specifications.
Chapter 2, Disassembly, provides step-by-step instructions for disassembling parts and subsystems and how to upgrade elements of the system.

Appendix A, Part Lists
Appendix B, Schematic Diagrams

IMPORTANT SAFETY INSTRUCTIONS

Follow basic safety precautions, including those listed below, to reduce the risk of fire, electric shock and injury to persons when using any electrical equipment:

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit (Full Range AC/DC Adapter - AC Input 100 - 240V, 50 - 60Hz/ DC Output 20V, 6.A (**120W**) minimum).

CAUTION

Always disconnect all telephone lines from the wall outlet before servicing or disassembling this equipment.

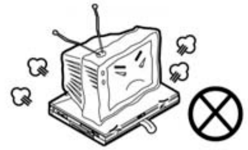
TO REDUCE THE RISK OF FIRE, USE ONLY NO. 26 AWG OR LARGER, TELECOMMUNICATION LINE CORD

This Computer’s Optical Device is a Laser Class I Product

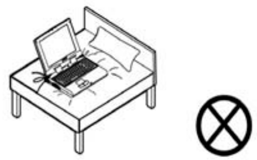
Instructions for Care and Operation

The notebook computer is quite rugged, but it can be damaged. To prevent this, follow these suggestions:

1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.

Do not expose the computer to any shock or vibration.	*Do not place it on an unstable surface.*	*Do not place anything heavy on the computer.*
		

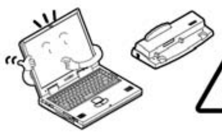
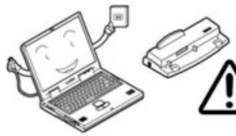
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

Do not expose it to excessive heat or direct sunlight.	*Do not leave it in a place where foreign matter or moisture may affect the system.*	*Don't use or store the computer in a humid environment.*	*Do not place the computer on any surface which will block the vents.*
			

3. **Follow the proper working procedures for the computer**. Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.

Do not turn off the power until you properly shut down all programs.	*Do not turn off any peripheral devices when the computer is on.*	*Do not disassemble the computer by yourself.*	*Perform routine maintenance on your computer.*
			

4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices**.

Use only approved brands of peripherals. 	*Unplug the power cord before attaching peripheral devices.* 

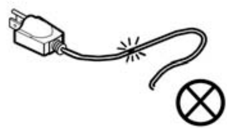
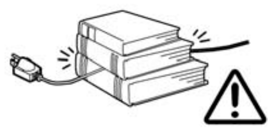
Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Power Safety

The computer has specific power requirements:

- Only use a power adapter approved for use with this computer.
- Your AC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your service representative or local power company.
- The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.
- When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.
- Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.
- Before cleaning the computer, make sure it is disconnected from any external power supplies (i.e. AC/DC adapter or car adapter).

Do not plug in the power cord if you are wet. 	*Do not use the power cord if it is broken.* 	*Do not place heavy objects on the power cord.* 

Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not continue to use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire.
- Recharge the batteries using the notebook's system. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack. Refer any battery pack repair or replacement to your service representative or qualified service personnel.
- Keep children away from, and promptly dispose of a damaged battery. Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.
- Keep the battery away from metal appliances.
- Affix tape to the battery contacts before disposing of the battery.
- Do not touch the battery contacts with your hands or metal objects.

Battery Disposal

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Caution

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

Related Documents

You may also need to consult the following manual for additional information:

User’s Manual on CD
This describes the notebook PC’s features and the procedures for operating the computer and its ROM-based setup program. It also describes the installation and operation of the utility programs provided with the notebook PC.

Contents

1: Introduction

Overview

This manual covers the information you need to service or upgrade the ***M860TU*** series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in *User's Manual*. That manual is shipped with the computer.

Operating systems (e.g. *Windows XP,* etc.) have their own manuals as do application software (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The ***M860TU*** series notebook is designed to be upgradeable. See ***"Disassembly" on page 2 - 1*** for a detailed description of the upgrade procedures for each specific component. Please note the warning and safety information indicated by the "🔔" symbol.

The balance of this chapter reviews the computer's technical specifications and features.

System Specifications

Feature	Specification	
Processor Types	Intel® Core™2 Duo Processor (478-pin) Micro-FC-PGA Package, Socket P **T9400/ T9600**	45nm (45 Nanometer) Process Technology 6MB On-die L2 Cache & 1066MHz FSB (35W) **2.53GHz / 2.8GHz**
	Intel® Core™2 Duo Processor (478-pin) Micro-FC-PGA Package, Socket P **P9500**	45nm (45 Nanometer) Process Technology 6MB On-die L2 Cache & 1066MHz FSB (25W) **2.53GHz**
	Intel® Core™2 Duo Processor (478-pin) Micro-FC-PGA Package, Socket P **P8400/ P8600**	45nm (45 Nanometer) Process Technology 3MB On-die L2 Cache & 1066MHz FSB (25W) **2.26/ 2.40GHz**
Core Logic	Intel(R) PM45 + ICH9M Chipset	
LCD	Flat Panel TFT (For **One** of the Following Options) 15.4" WXGA (1280 * 800) TFT LCD (Glare Type) **OR** 15.4" WXGA+ (1440 * 900) TFT LCD **OR** 15.4" WSXGA+ (1680 * 1050) TFT LCD (Glare Type) **OR** 15.4" WUXGA (1920 * 1200) TFT LCD	
Security	Security (Kensington® Type) Lock Slot BIOS Password	Fingerprint Reader Module (**Factory Option**)
Memory	Two 204 Pin SO-DIMM Sockets Supporting **DDRIII (DDR3**) at 1066 MHz Supports Dual Channel DDRIII (DDR3) SDRAM 64-bit Wide Per Data Channel Memory Expandable up to 4GB (1024/ 2048 MB **DDRIII** Modules)	

Feature	Specification	
Video Adapter Options	**NVIDIA GeForce 9600M GS** PCI-E Video Card 256MB GDDR3 Video RAM On Board MS DirectX® 10.0 Compatible MXM-II Supports HDCP **NVIDIA GeForce 9800M GT** PCI-E Video Card 512MB GDDR3 Video RAM On Board MS DirectX® 10.0 Compatible MXM-III Supports HDCP	**NVIDIA GeForce 8800M GTX** PCI-E Video Card 512MB GDDR3 Video RAM On Board MS DirectX® 10.0 Compatible MXM-III Supports HDCP **Video Card Options** Note that card types, specifications and drivers are subject to continual updates and changes. Check with your service center for the latest details on video cards supported.
BIOS	One 32Mb SPI Flash ROM	Phoenix™ BIOS
Storage	One Changeable 12.7mm(h) SATA Optical Device (CD/DVD) Type Drive (see ***"Optional" on page 1 - 5*** for drive options) Easy Changeable 2.5" 9.5 mm (h) SATA (Serial) HDD	
Card Reader	Embedded 7-in-1 Card Reader (MS/ MS Pro/ SD/ Mini SD/ MMC/ RS MMC/ MS Duo) **Note:** MS Duo/ Mini SD/ RS MMC Cards Require a PC Adapter	
Audio	High Definition Audio 3D Stereo Enhanced Sound System Sound-Blaster PRO™ Compatible	Built-In Microphone 2 * Built-In Speakers S/PDIF Digital Output
Keyboard & Pointing Device	Full Size Winkey Keyboard with Numeric Keypad	Built-In TouchPad (Scroll Functionality Included)
ExpressCard Slot	ExpressCard/34/54 Slot	
Mini-Card Slots	One Mini-Card Slot for **3.5G Module** One Mini-Card Slot for **Wireless LAN Module**	

Feature	Specification	
I/O Ports	Four USB 2.0 Ports One Combined eSATA Port/USB Port eSATA Port (hot swapping supported in ***Windows Vista*** only): AHCI mode supports hot swapping IDE mode does not support hot swapping One HDMI (High-Definition Multimedia Interface) Port with 5.1Channel Support One Headphone/Speaker-Out Jack One Microphone-In Jack	One S/PDIF Out Jack One RJ-45 LAN Jack One RJ-11 Modem Jack One Mini-IEEE1394a Port One DC-In Jack One DVI-Out Port (No HDCP Support)
Communication	Built-In 56K Fax Modem Built-In 10/100/1000Mb Base-TX Ethernet LAN Intel® WiFi Link 5300 Series (3*3 - 802.11a/g/n) Wireless LAN Mini-Card Module (**Option**) Intel® WiFi Link 5100 Series (1*2 - 802.11a/g/n) Wireless LAN Mini-Card Module (**Option**) 3rd Party 802.11b/g Wireless LAN Mini-Card Module with USB interface (**Option**) Bluetooth 2.0 + EDR (Enhanced Data Rate) Module (**Factory Option**) 1.3M or 2.0M Pixel PC Camera Module with USB interface (**Factory Option**) **3.5G Module**: UMTS/HSPDA-based 3.5G Mini-Card Module with USB Interface (Factory **Option**) Quad-band GSM/GPRS (850 MHz, 900 MHz, 1800 MHz, 1900 MHz) UMTS WCDMA FDD (2100 MHz) **UMTS Modes** Note that UMTS modes CAN NOT be used in North America.	
Operating Systems Supported	Windows XP SP2	Windows Vista 64bit SP1 Home Premium/ Business/ Enterprise/ Ultimate
Power Management	Supports ACPI 3.0	Supports Resume from Modem Ring Supports Wake on LAN

Feature	Specification	
Power	Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 20V, 6A (120 Watts) Easy Changeable 8-Cell Smart Lithium-Ion 4400mAH Main Battery	
Environmental Spec	**Temperature** Operating: 5°C - 35°C Non-Operating: -20°C - 60°C	**Relative Humidity** Operating: 20% - 80% Non-Operating: 10% - 90%
Physical Dimensions & Weight	364mm (w) * 269.5mm (d) * 29 ~ 41mm (h)	Around 3.2kg with 8 Cell Battery and ODD
Optional	**SATA Optical Drive Module Options:** Combo DVD Drive Module Super Multi Drive Module Blu-Ray Drive Module Intel® WiFi Link 5300/5100 Series (3*3/1*2 - 802.11a/g/n) Wireless LAN Mini-Card Module 3rd Party 802.11b/g Wireless LAN Mini-Card Module with USB interface Bluetooth 2.0 + EDR (Enhanced Data Rate) Module (**Factory Option**) 1.3M or 2.0M Pixel USB 2.0 PC Camera Module (**Factory Option**)	Intel Turbo Memory (Robson) NAND Flash 2G Memory Card Module (**Factory Option**) Fingerprint Reader Module (**Factory Option**) UMTS/HSPDA-based 3.5G Module with Mini Card Interface (**Factory Option**) Quad-band GSM/GPRS (850 MHz, 900 MHz, 1800 MHz, 1900 MHz) UMTS WCDMA FDD (2100 MHz) **UMTS Modes** Note that UMTS modes CAN NOT be used in North America.

External Locator - Top View with LCD Panel Open

Figure 1
Top View

1. Optional Built-In PC Camera
2. LCD
3. Hot Key Buttons
4. Power Button
5. Speakers
6. Keyboard
7. Built-In Microphone
8. TouchPad and Buttons
9. Fingerprint Reader Module (**optional**)



External Locator - Front and Rear View



Figure 2
Front View

1. Headphone-Out Jack
2. Microphone-In Jack
3. S/PDIF-Out Jack
4. Mini-IEEE 1394 Port
5. LED Indicators



Figure 3
Rear View

1. Vent/Fan Intake/ Outlet
2. DVI-Out Port
3. HDMI-Out Port
4. *Combined eSATA/ USB Port
5. USB 2.0 Port
6. DC-In Jack
7. Security Lock Slot

*Note that the eSATA port does not support hot-swapping in ***Windows XP***. Make sure you install the **Intel Matrix** driver for e-SATA support in ***Windows Vista***.

External Locator - Left & Right Side View

Figure 4
Left Side View

1. Optional Device Drive Bay (for CD/DVD Device)



Figure 5
Right Side View

1. Express Card Slot
2. 7-in-1 Card Reader
3. 2 * USB 2.0 Ports
4. RJ-45 LAN Jack
5. RJ-11 Phone Jack



External Locator - Bottom View

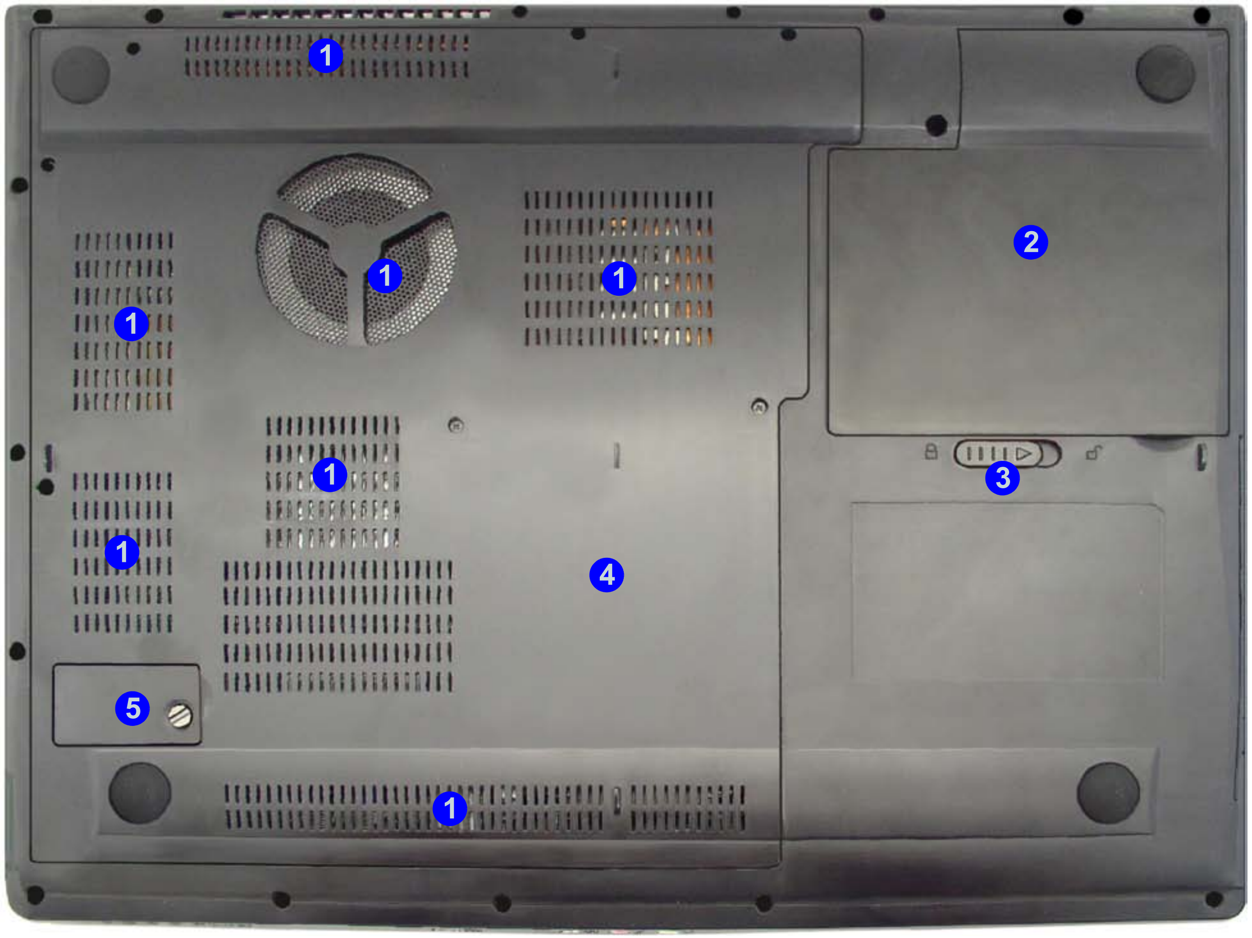


Figure 6
Bottom View

1. Vent/Fan Intake/ Outlet
2. Battery
3. Battery Release Latch
4. Component Bay Cover
5. 3.5G USIM Card Cover

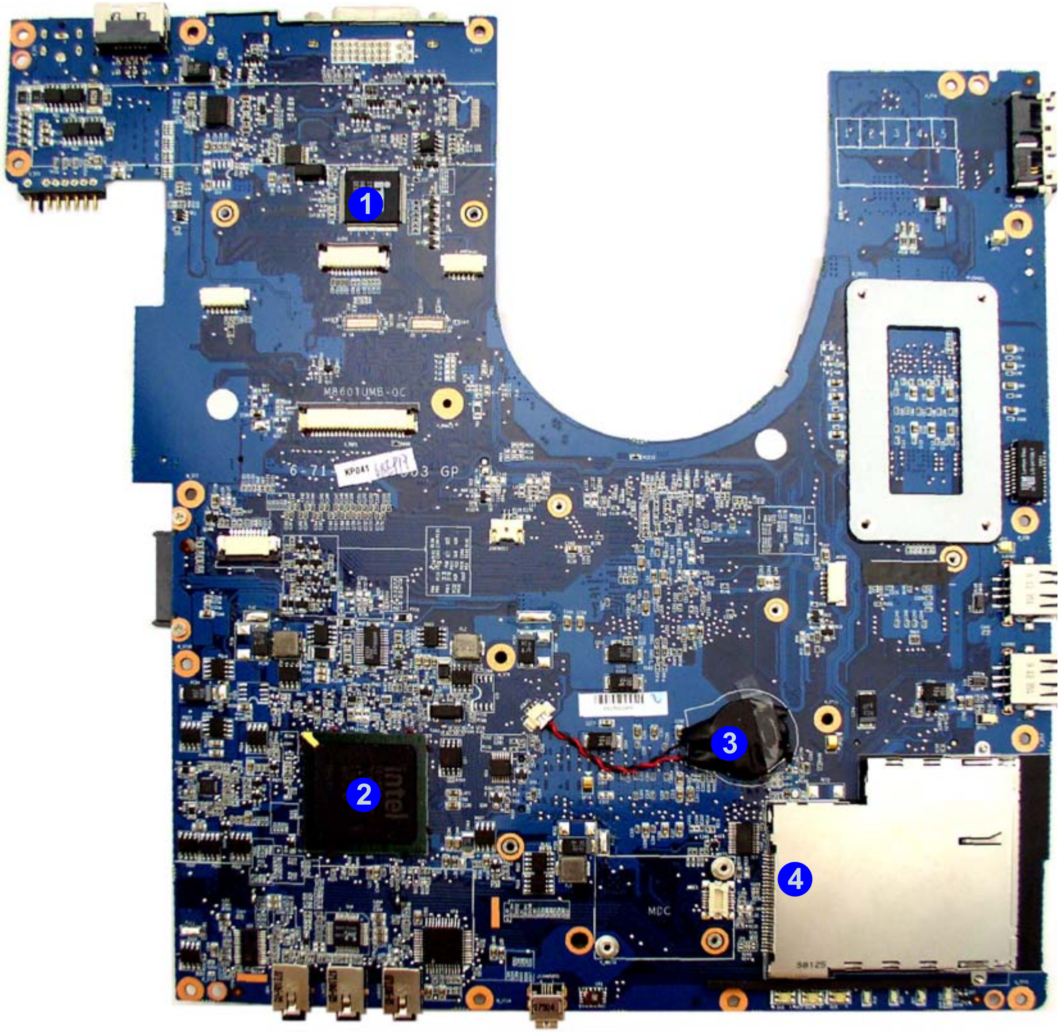
Overheating

To prevent your computer from overheating make sure nothing blocks the vent/fan intakes while the computer is in use.

Mainboard Overview - Top (Key Parts)

Figure 7
Mainboard Top Key Parts

1. ITE
2. Southbridge
3. CMOS Battery
4. New Card Assembly



Mainboard Overview - Bottom (Key Parts)

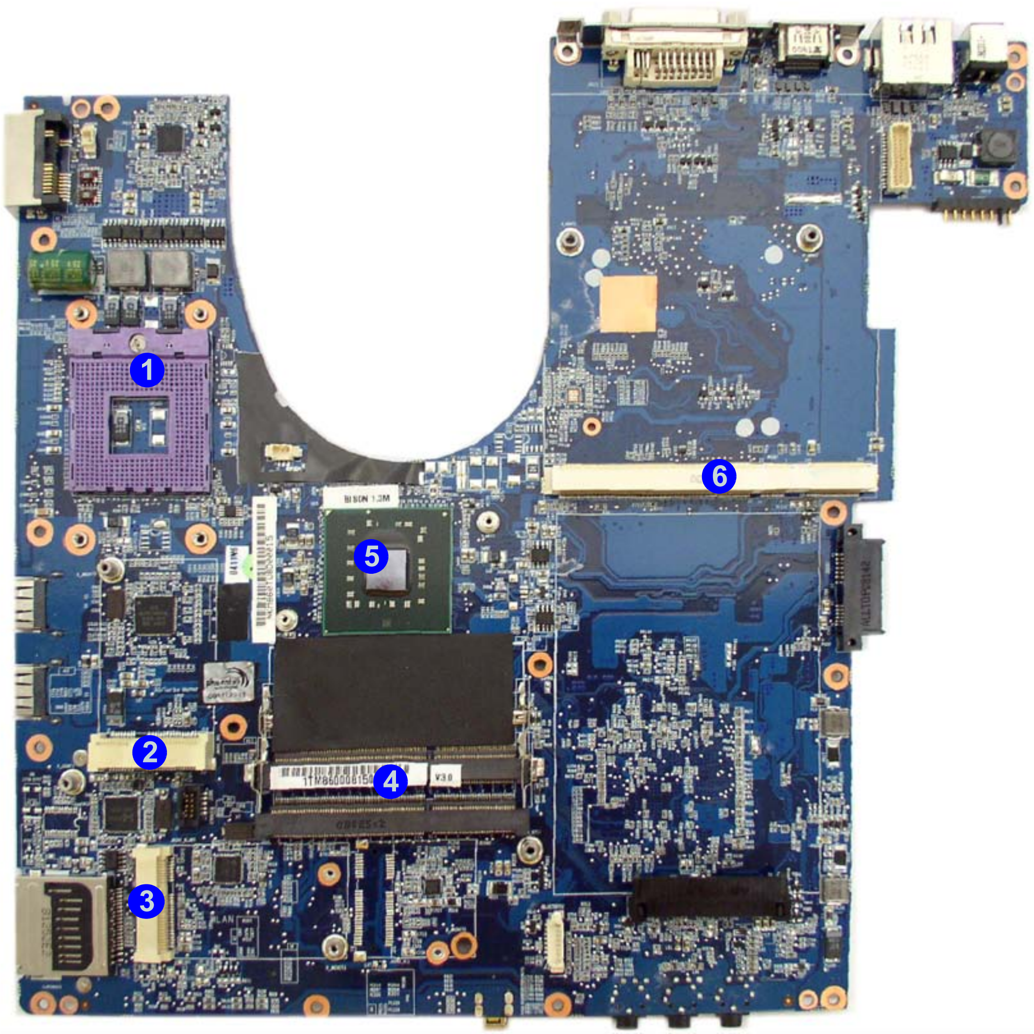


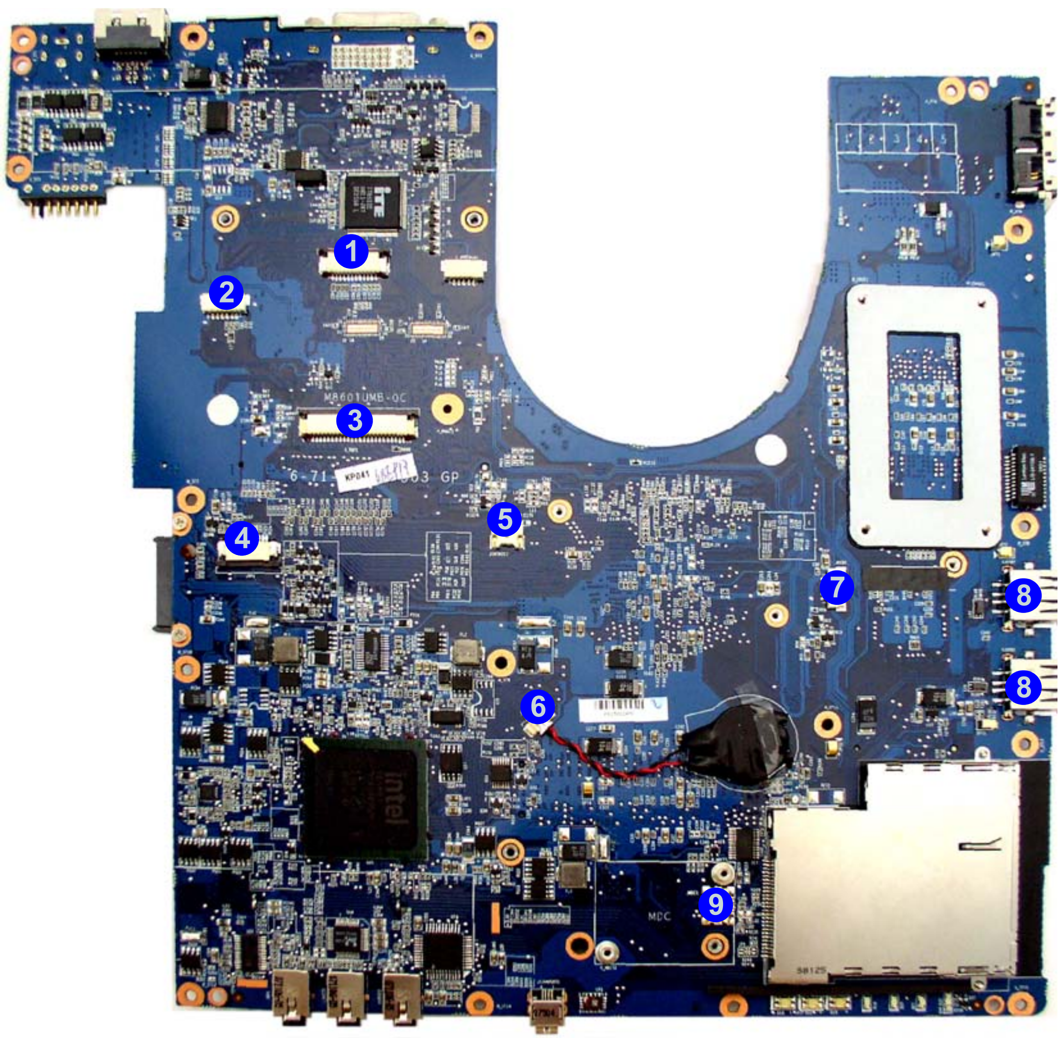
Figure 8
Mainboard Bottom Key Parts

1. CPU Socket (no CPU installed)
2. Mini-PCIe Socket (3G Module)
3. Mini-PCIe Socket (Wireless Lan Module)
4. Memory Slots DDR2 So-DIMM
5. NorthBridge
6. 160-Pin VGA Socket

Mainboard Overview - Top (Connectors)

Figure 9
Mainboard Top Connectors

1. LED Cable Connector
2. Inverter Board Cable Connector
3. Keyboard Cable Connector
4. TouchPad Cable Connector
5. Microphone Cable Connector
6. CMOS Battery Connector
7. CCD Cable Connector
8. USB Port
9. MDC Connector



Mainboard Overview - Bottom (Connectors)

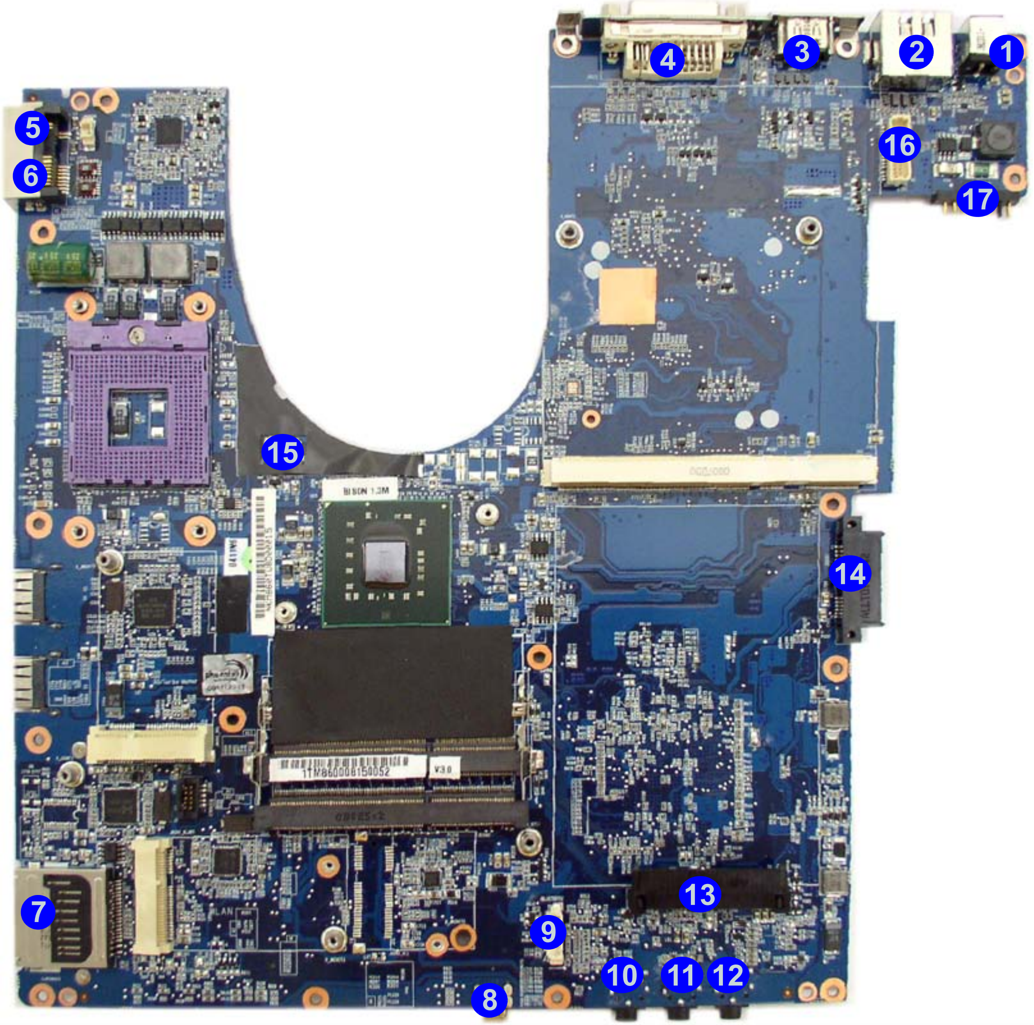


Figure 10
Mainboard Bottom Connectors

1. DC-In Jack
2. eSATA + USB Port
3. HDMI Port
4. DVI-Out Port
5. RJ-11 Jack
6. RJ-45 Jack
7. 7-in-1 Card Reader Connector
8. Mini-IEEE 1394a Port
9. Bluetooth Cable Connector
10. S/PDIF-Out Jack
11. Microphone Jack
12. Headphone Jack
13. HDD Connector
14. CD Connector
15. CPU Fan Cable Connector
16. LCD Cable Connector
17. Battery Connector

2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the ***M860TU*** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

We suggest you completely review any procedure before you take the computer apart.

Procedures such as upgrading/replacing the RAM, CD device and hard disk are included in the User's Manual but are repeated here for your convenience.

To make the disassembly process easier each section may have a box in the page margin. Information contained under the figure # will give a synopsis of the sequence of procedures involved in the disassembly procedure. A box with a lists the relevant parts you will have after the disassembly process is complete. **Note**: The parts listed will be for the disassembly procedure listed ONLY, and not any previous disassembly step(s) required. Refer to the part list for the previous disassembly procedure. The amount of screws you should be left with will be listed here also.

A box with a will also provide any possible helpful information. A box with a contains warnings.

An example of these types of boxes are shown in the sidebar.

Information

Warning

NOTE: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

Maintenance Tools

The following tools are recommended when working on the notebook PC:

- M3 Philips-head screwdriver
- M2.5 Philips-head screwdriver (magnetized)
- M2 Philips-head screwdriver
- Small flat-head screwdriver
- Pair of needle-nose pliers
- Anti-static wrist-strap

Connections

Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors	To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Pressure sockets for multi-wire connectors	To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.
Pressure sockets for ribbon connectors	To release these connectors, use a small pair of needle-nose pliers to gently lift the connector away from its socket. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Board-to-board or multi-pin sockets	To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.

Maintenance Precautions

The following precautions are a reminder. To avoid personal injury or damage to the computer while performing a removal and/or replacement job, take the following precautions:

1. **Don't drop it**. Perform your repairs and/or upgrades on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it**. Note the proximity of any heating elements. Keep the computer out of direct sunlight.
3. **Avoid interference**. Note the proximity of any high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage components and/or data. You should also monitor the position of magnetized tools (i.e. screwdrivers).
4. **Keep it dry**. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power**. Avoid accidental shocks, discharges or explosions.
   - Before removing or servicing any part from the computer, turn the computer off and detach any power supplies.
   - When you want to unplug the power cord or any cable/wire, be sure to disconnect it by the plug head. Do not pull on the wire.
6. **Peripherals** – Turn off and detach any peripherals.
7. **Beware of static discharge**. ICs, such as the CPU and main support chips, are vulnerable to static electricity. Before handling any part in the computer, discharge any static electricity inside the computer. When handling a printed circuit board, do not use gloves or other materials which allow static electricity buildup. We suggest that you use an anti-static wrist strap instead.
8. **Beware of corrosion**. As you perform your job, avoid touching any connector leads. Even the cleanest hands produce oils which can attract corrosive elements.
9. **Keep your work environment clean**. Tobacco smoke, dust or other air-born particulate matter is often attracted to charged surfaces, reducing performance.
10. **Keep track of the components**. When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.

Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.
Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

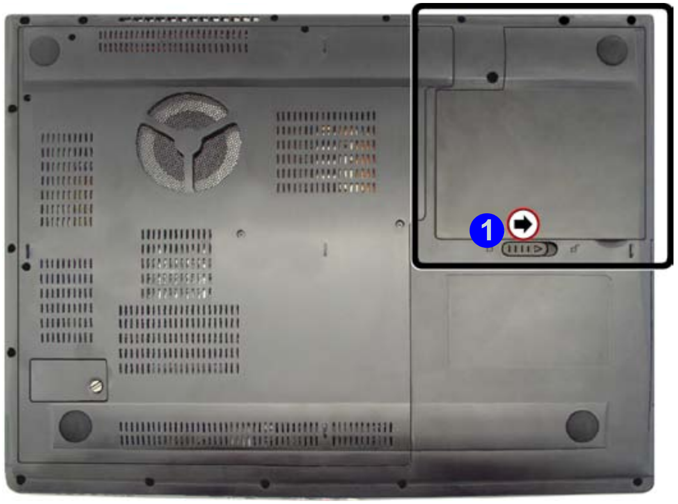
Disassembly Steps

The following table lists the disassembly steps, and on which page to find the related information. **PLEASE PERFORM THE DISASSEMBLY STEPS IN THE ORDER INDICATED.**

Removing the Battery

1. Turn the computer off, and turn it over.
2. Slide latch 1 towards the unlock symbol and hold it in place, and lift the battery 2 up and out of the battery bay.

a.



b.



Figure 1
Battery Removal

a. Slide latch at point 1 towards the unlock symbol and hold it in place.
b. Lift the battery out.

2. Battery

Removing the Hard Disk Drive

The hard disk drive is mounted in a removable case and can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

Hard Disk Upgrade Process

1. Turn **off** the computer, and turn it over and remove the battery (***page 2 - 5***).
2. Locate the component bay cover and remove screws 1 - 7.
3. Carefully (**a fan and cable are attached to the under side of the cover**) lift up the bay cover 8 .
4. Carefully disconnect the fan cable 9, and remove the cover 8 .
5. The hard disk assembly cover will be visible at point 10 on the mainboard.

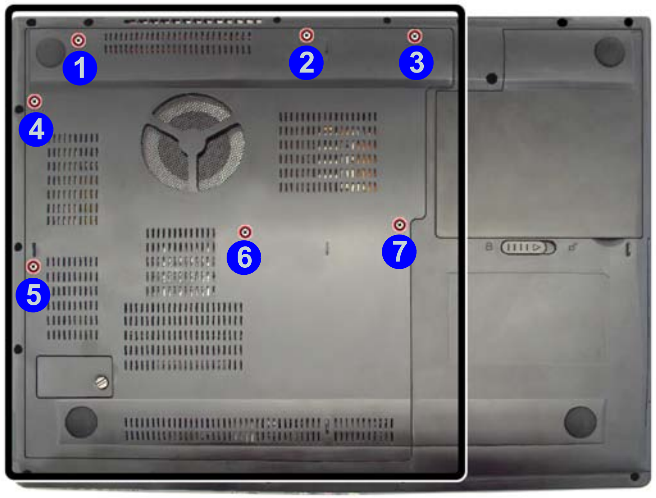
Figure 2
HDD Assembly Removal

a. Remove the screws.
b. Remove the cover and locate the hdd.

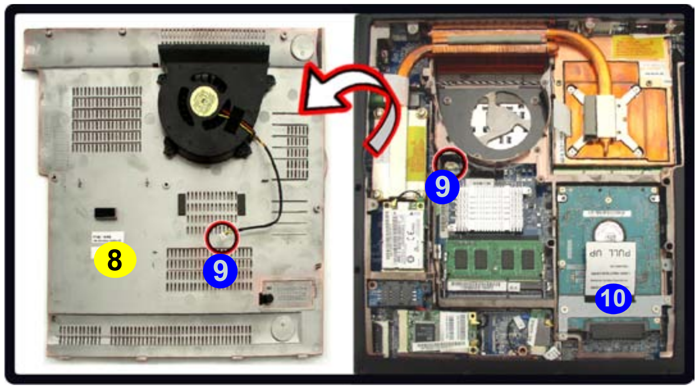
Fan Cable

Make sure you reconnect the fan cable 9 before screwing down the bay cover.

a.



b.



8. Component Bay Cover

- 7 Screws

6. Remove screws 11 - 12 from the hard disk assembly.
7. Pull the hard disk assembly in the direction of the arrow 13.
8. Carefully remove the hard disk assembly in the direction of the arrow 14.
9. Remove screws 15 - 16 to separate the hard disk 17 from the bracket 18 and connector 19 .
10. Reverse the process to install a new hard disk(s).

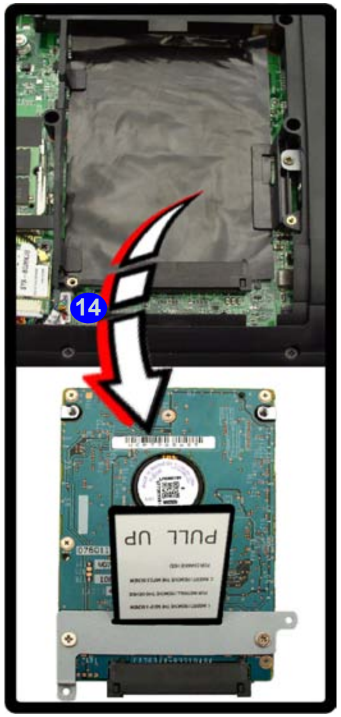
c.



d.



e.



f.

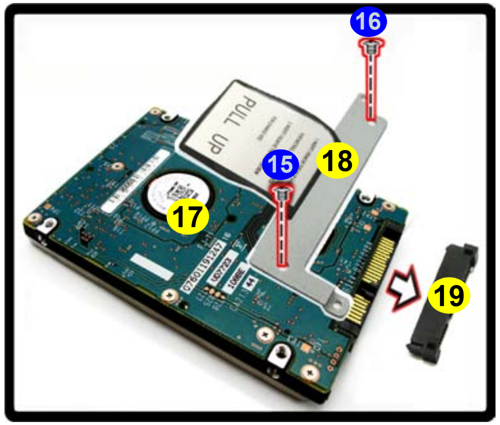


Figure 3
HDD Assembly Removal (cont'd)

c. Remove screws.
d. Pull the HDD module in the direction of the arrow
e. Remove the HDD module.
f. Remove the screws and separate the bracket and connector from the HDD.

17. HDD
18. HDD Bracket
19. HDD Connector

- 4 Screws

Removing the Optical (CD/DVD) Device

Figure 4
Optical Device Removal

a. Remove the screw.
b. Slide the optical device out of the computer at point 2.

1. Turn **off** the computer, turn it over and remove the battery (***page 2 - 5***) and component bay cover (***page 2 - 6***).
2. Remove the screw at point 1, and use a screwdriver to carefully push out the optical device 3 at point 2 out of the computer.
3. Restart the computer to allow it to automatically detect the new device.

a.



b.



Fan Cable

Make sure you reconnect the fan cable 9 (see ***page 2 - 6***) before screwing down the bay cover.

3. Optical Device

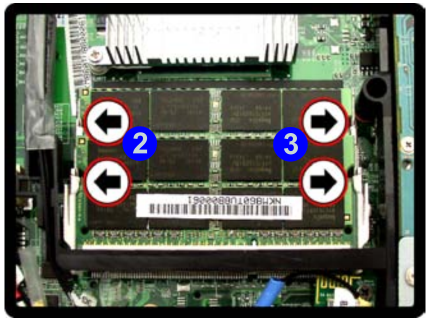
Removing the System Memory (RAM)

The computer has two memory sockets for 200 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDRIII (DDR3) Up to 1066 MHz. The main memory can be expanded up to 4GB. The SO-DIMM modules supported are 1024MB and 2048MB **DDRIII** Modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

Memory Upgrade Process

1. Turn **off** the computer, turn it over and remove the battery (*page 2 - 5*) and the component bay cover (*page 2 - 6*).
2. The RAM module(s) will be visible at point 1 on the mainboard.
3. Gently pull the two release latches (2 & 3) on the sides of the memory socket in the direction indicated by the arrows (*Figure 5b*).

a.


b.


c.


4. The RAM module(s) 4 will pop-up (*Figure 5c*), and you can then remove it.
5. Pull the latches to release the second module if necessary.
6. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
7. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE IT; it should fit without much pressure.
8. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
9. Replace the component bay cover and the screws (see *page 2 - 6*).
10. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

Figure 5
RAM Module Removal

a. Locate the memory socket.
b. Pull the release latch(es).
c. Remove the module(s).

Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

4. RAM Module

Removing and Installing a Processor

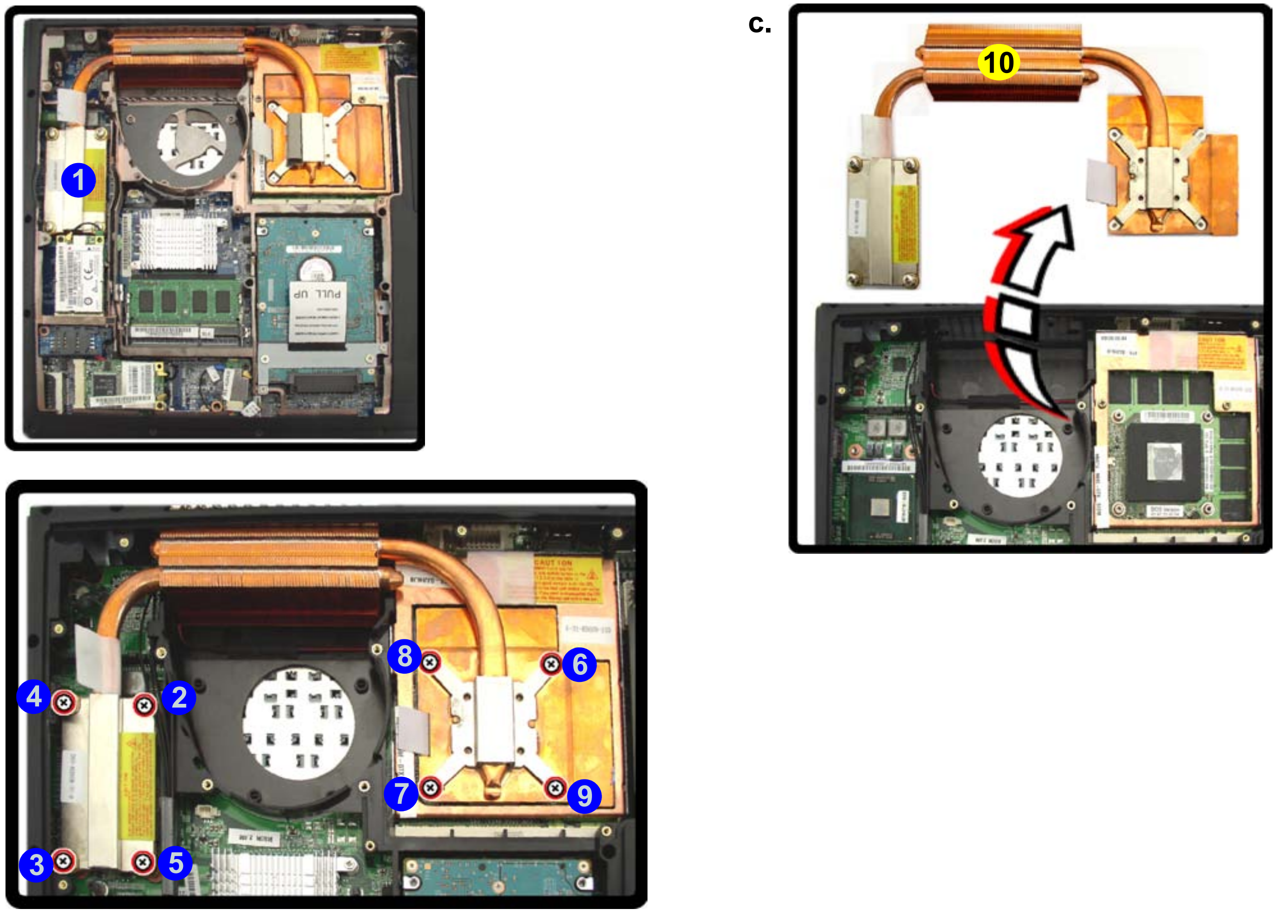
Figure 6
Processor Removal

a. Locate the heat sink.
b. Remove the screws in the order indicated.
c. Remove the heat sink.

Processor Removal Procedure

1. Turn **off** the computer, turn it over, and remove the battery (***page 2 - 5***) and the component bay cover (***page 2 - 6***).
2. The heat sink will be visible at point 1 on the mainboard
3. Remove the screws 2 - 9 from the heat sink in the order indicated (***Figure 6b***).
4. Carefully lift the heat sink 10 (***Figure 6c***) up off the computer.

a. b. c.



10. Heat Sink

- 8 Screws

5. Turn the release latch 11 towards the unlock symbol to release the CPU.
6. Carefully (it may be hot) lift the CPU 12 up and out of the socket (***Figure 7e***).
7. Reverse the process to install a new CPU.
8. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).

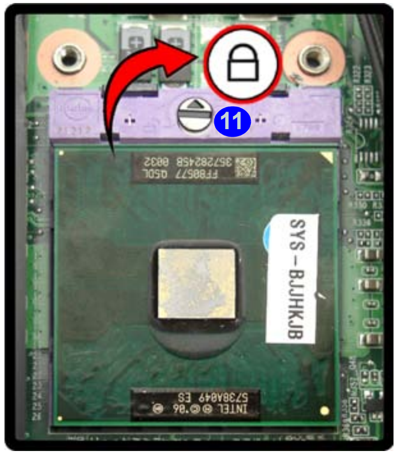
Figure 7
Processor Removal (cont'd)

d. Turn the release latch to unlock the CPU.
e. Lift the CPU out of the socket.

d.



Unlock



Lock

e.



Caution

The heat sink, and CPU area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.

12. CPU

Figure 8
Processor Installation

a. Insert the CPU.
b. Turn the release latch towards the lock symbol.
c. Remove the sticker from the heat sink and insert the heat sink.
d. Tighten the screws.

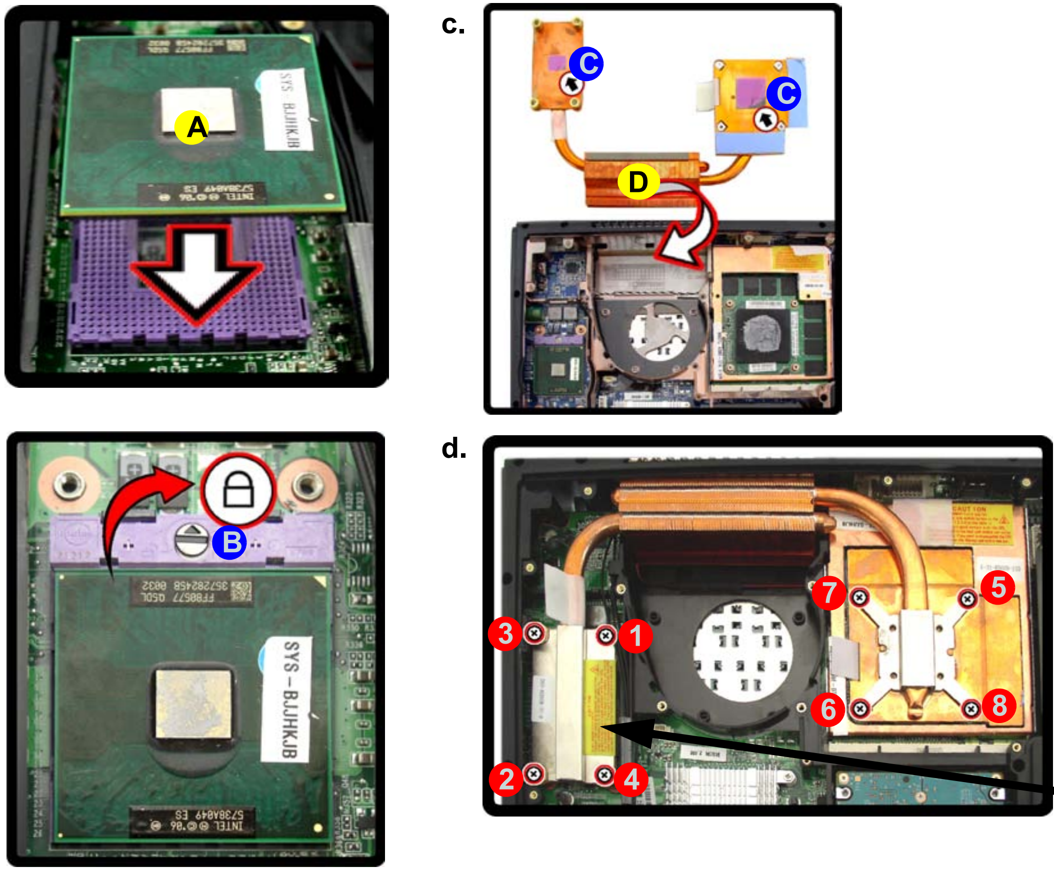
A. CPU
D. Heat Sink

- 8 Screws

Processor Installation Procedure

1. Insert the CPU A, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!), and turn the release latch B towards the lock symbol (*Figure 8b*).
2. **Remove the sticker** C (*Figure 8c*) from the heat sink.
3. Insert the heat sink D as indicated in *Figure 8c*.
4. Tighten the CPU heat sink screws in the order 1 to 4 and 5 to 8 (the order as indicated on the label and *Figure 8d*).
5. Replace the component bay cover and tighten the screws (see *page 2 - 6*).

a. c. b. d.



Note:

Tighten the screws in the order as indicated on the label.

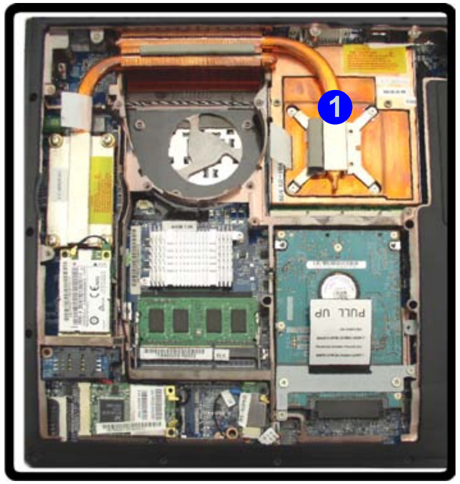
Removing the VGA Card

1. Turn **off** the computer, turn it over, and remove the battery (***page 2 - 5***), the component bay cover (***page 2 - 6***) and the CPU heat sink (***page 2 - 10***).
2. The VGA Card(s) will be visible at point 1 on the mainboard.
3. Remove screws 2 - 3 (***Figure 9b***).
4. Carefully grip the plastic holder and lift the video card 4 up and off the sockets.
5. Reverse the process to install the new VGA Card.

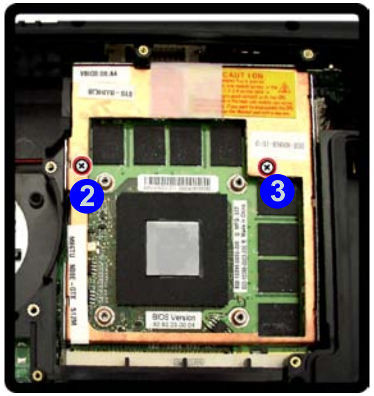
Figure 9
VGA Card Removal

a. Locate the VGA.
b. Remove the screws.
c. Lift the VGA card up and off the sockets.

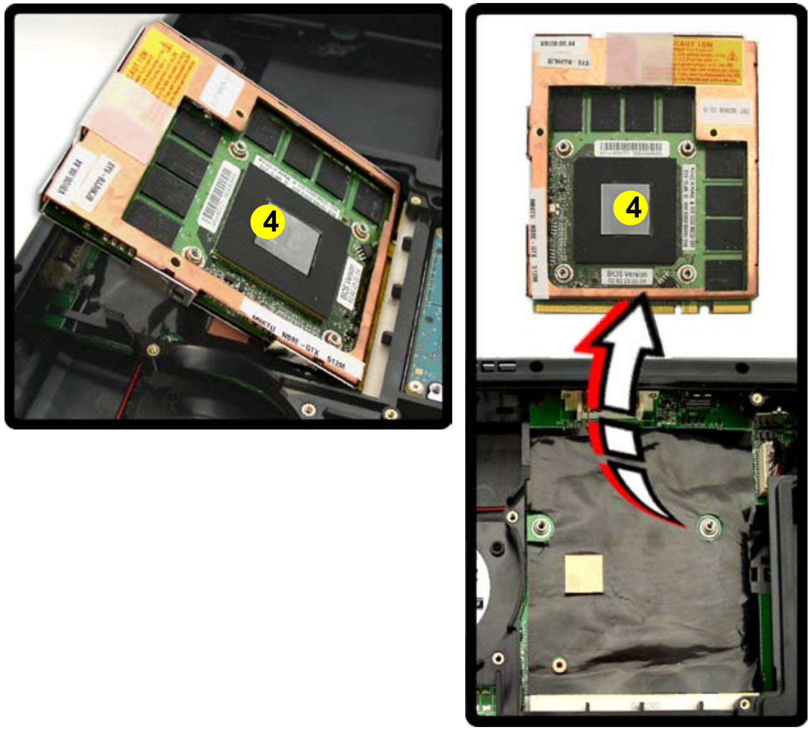
a.



b.



c.



4. VGA Card

- 2 Screws

Figure 10
3G Module Removal

a. Locate the 3G module.
b. Disconnect the cable and remove the screw.
c. The 3G module will pop up.
d. Remove the 3G module.

Note: Make sure you reconnect the antenna cable to socket (***Figure 10b***).

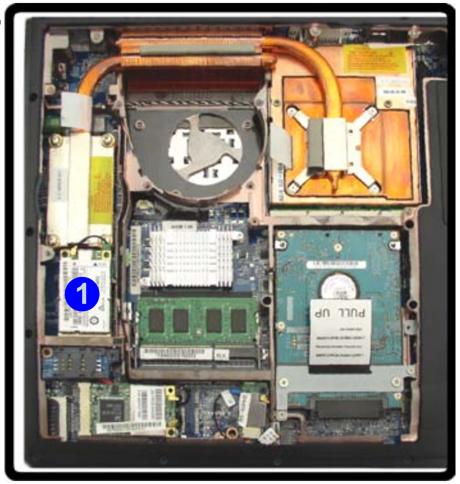
4.3G Module

- 1 Screw

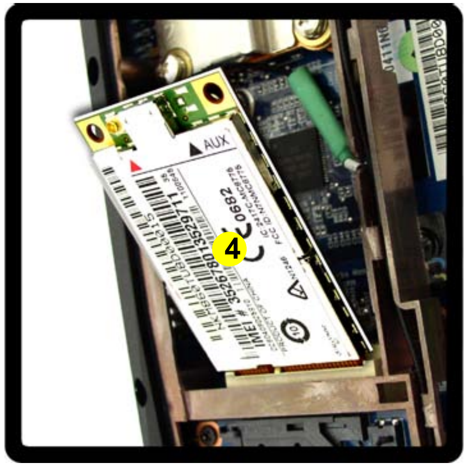
Removing the 3G Module

1. Turn **off** the computer, turn it over, and remove the battery (***page 2 - 5***) and the component bay cover (***page 2 - 6***).
2. The 3G module will be visible at point 1 on the mainboard.
3. Carefully disconnect the cable 2, and then remove the screw 3.
4. The 3G module 4 (***Figure 11c***) will pop-up, and you can remove it off the computer.

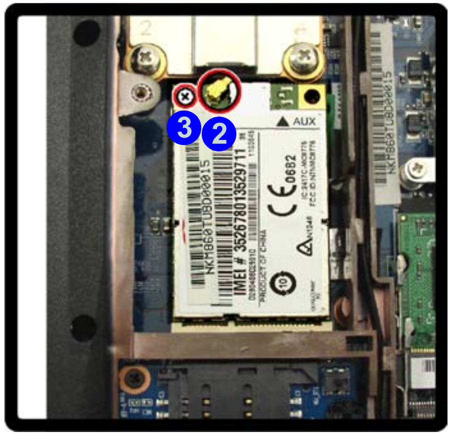
a.



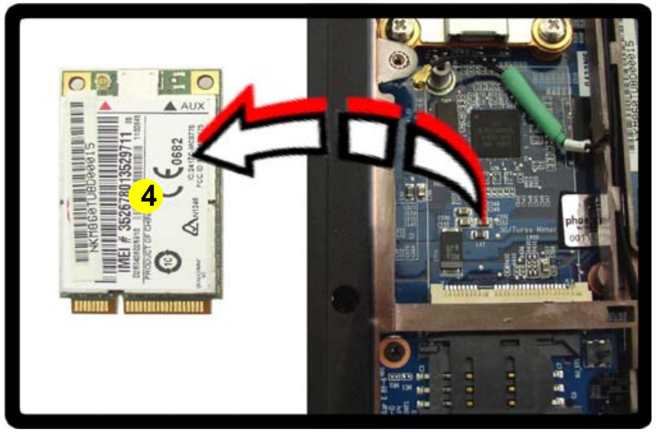
c.



b.



c.



Removing the Wireless LAN Module

1. Turn **off** the computer, turn it over, and remove the battery (***page 2 - 5***) and the component bay cover (***page 2 - 6***).
2. The wireless LAN module will be visible at point 1 on the mainboard.
3. Carefully disconnect the cables 2 - 3, and then remove the screw 4.
4. The wireless LAN module 5 (***Figure 11c***) will pop-up, and you can remove it off the computer.

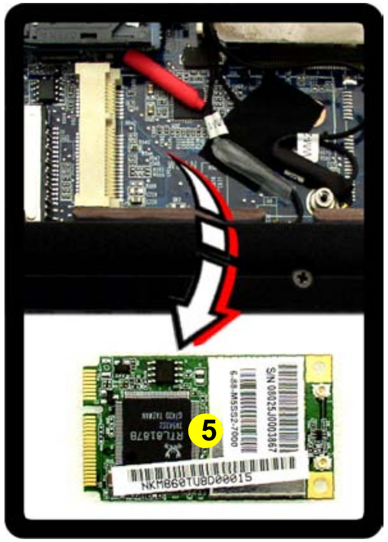
a.



c.



d.



b.



Figure 11
Wireless LAN Module Removal

a. Locate the WLAN.
b. Disconnect the cable and remove the screw.
c. The WLAN module will pop up.
d. Remove the Wireless LAN module.

Note: Make sure you reconnect the antenna cable to the "1 + 2" socket (***Figure 11b***).

5.Wireless LAN Module

- 1 Screw

Figure 12
Bluetooth Module Removal

a. Locate the Bluetooth module.
b. Remove the screw and disconnect the cable and the connector from the bluetooth module.
c. Lift the Bluetooth module out.

5. Bluetooth Module

- 1 Screw

Removing the Bluetooth Module

1. Turn **off** the computer, turn it over, and remove the battery (***page 2 - 5***) and the component bay cover (***page 2 - 6***).
2. The Bluetooth module will be visible at point **1** on the mainboard.
3. Remove the screw **2** and carefully disconnect the cable **3** and separate the connector **4** (***Figure 12b***) from the Bluetooth Module.
4. Lift the Bluetooth Module **5** (***Figure 12c***) up and off the computer.

a.



b.



c.



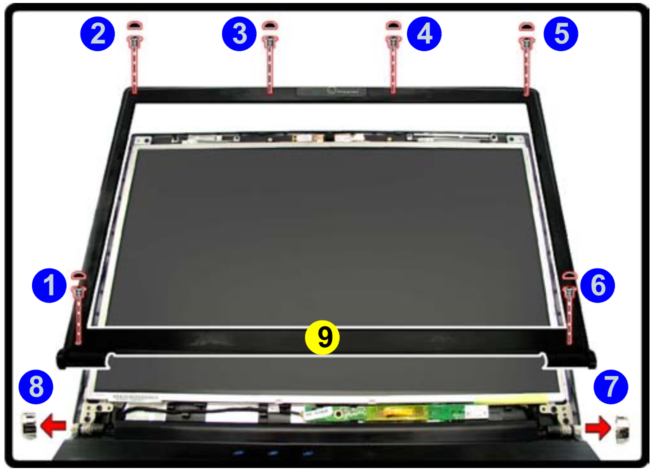
Removing the Inverter Board

1. Turn **off** the computer, and remove the battery (***page 2 - 5***).
2. Remove any rubber covers, screws 1 - 6 and hinge covers 7 - 8 (***Figure 13a***), then run your finger around the middle of the frame to carefully unsnap the LCD front panel module 9 from the back.
3. Discharge the remaining system power (see ***"Inverter Power Warning"*** below).
4. Remove screw 10 (***Figure 13b***) from the inverter, and carefully lift the inverter board up slightly.
5. Disconnect cables 11 & 12 (***Figure 13c***) from the inverter, then remove the inverter 13 (***Figure 13d***) from the top case assembly.

Figure 13
Inverter Board Removal

a. Remove the 6 screws and unsnap the LCD front panel module from the back.
b. Remove the screw from the inverter board and lift the board up slightly.
c. Disconnect the cables from the inverter.
d. Remove the inverter.

a.



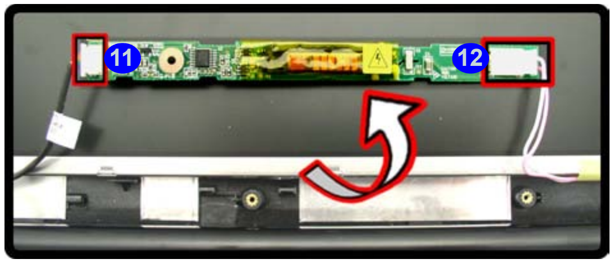
Inverter Power Warning

In order to prevent a short circuit when removing the inverter it is necessary to discharge any remaining system power. To do so, press the computer's power button for a few seconds before disconnecting the inverter cable.

b.



c.



d.



9. LCD Front Panel
13. Inverter Board

- 6 Screws

Figure 14
Keyboard Removal

a. Press the four latches to release the keyboard.
b. Lift the keyboard up and disconnect the cable from the locking collar.
c. Remove the keyboard.

Removing the Keyboard

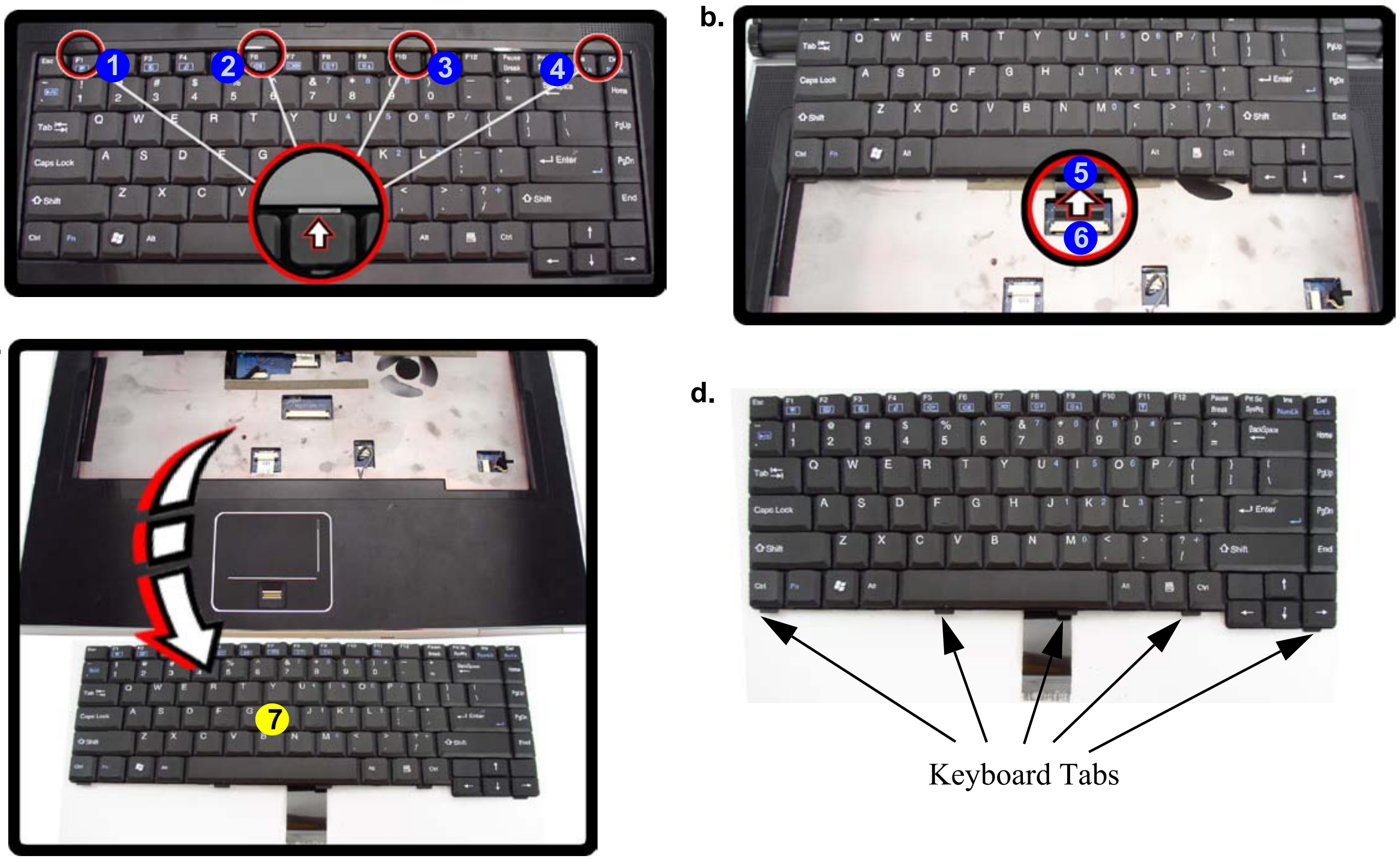
1. Turn **off** the computer, and remove the battery (***page 2 - 5***).
2. Press the **four** keyboard latches at the top of the keyboard to elevate the keyboard from its normal position (you may need to use a small screwdriver to do this).
3. Carefully lift the keyboard up, being careful not to bend the keyboard ribbon cable 5 (***Figure 14b***).
4. Disconnect the keyboard ribbon cable 5 from the locking collar socket 6.
5. Carefully lift up the keyboard 7 (***Figure 14c***) off the computer.

Re-Inserting the Keyboard

When re-inserting the keyboard firstly align the **five** keyboard tabs at the bottom (***Figure 14d***) at the bottom of the keyboard with the slots in the case.

7. Keyboard

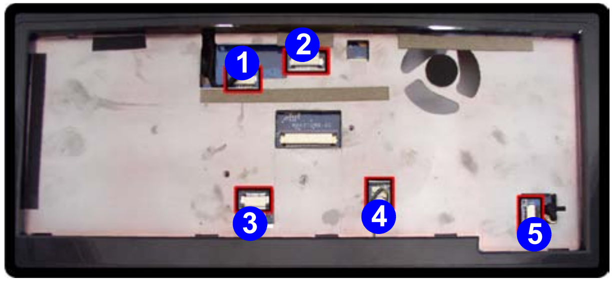
a.
b.
c.
d.



Removing the Modem

1. Turn **off** the computer, turn it over and remove the battery (***page 2 - 5***), hard disk (***page 2 - 6***), optical device (***page 2 - 8***), RAM (***page 2 - 9***), CPU (***page 2 - 10***), VGA card (***page 2 - 13***), 3G (***page 2 - 14***), wireless LAN (***page 2 - 15***), Bluetooth (***page 2 - 16***) and keyboard (***page 2 - 18***).
2. Carefully disconnect connectors (1 - 5) and turn the computer over.
3. Remove screws 6 - 27 from the bottom case (***Figure 15d***) and remove screws 28 - 29 from the rear of the computer.

a.



b.

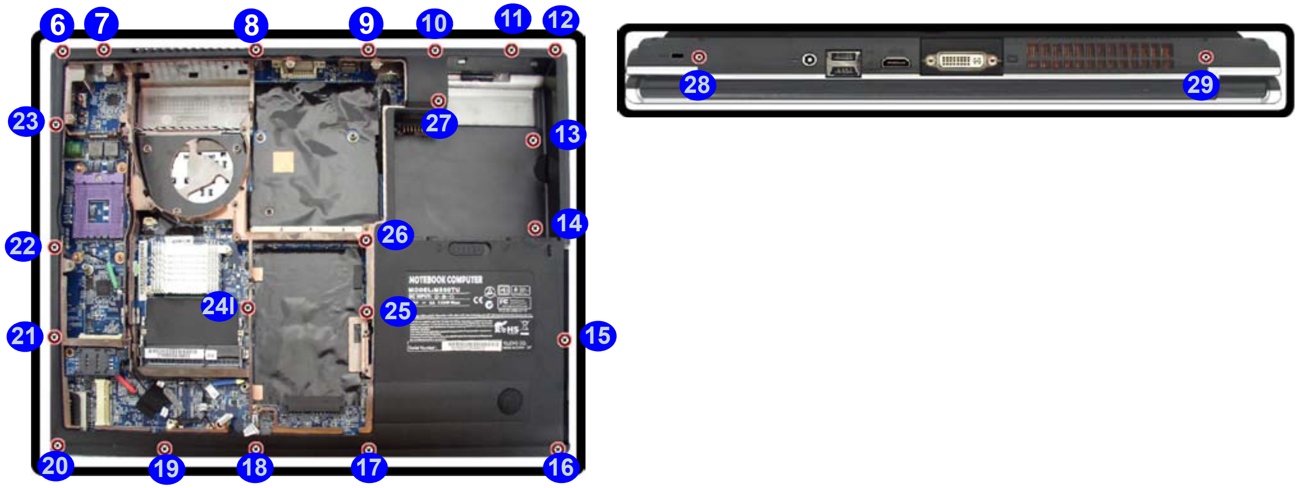


Figure 15
Modem Removal

a. Disconnect the connectors.
b. Remove the screws.

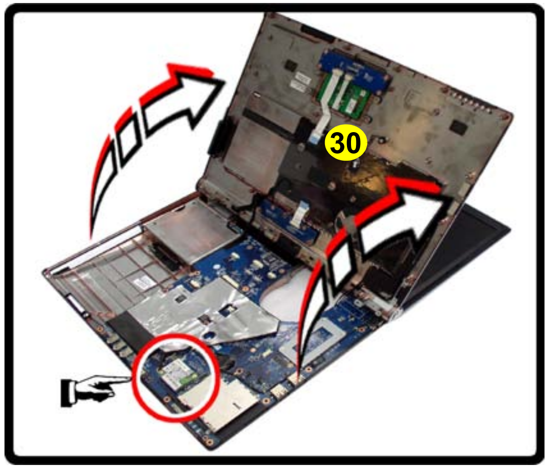
- 24 Screws

Figure 16
Modem Removal (cont'd)

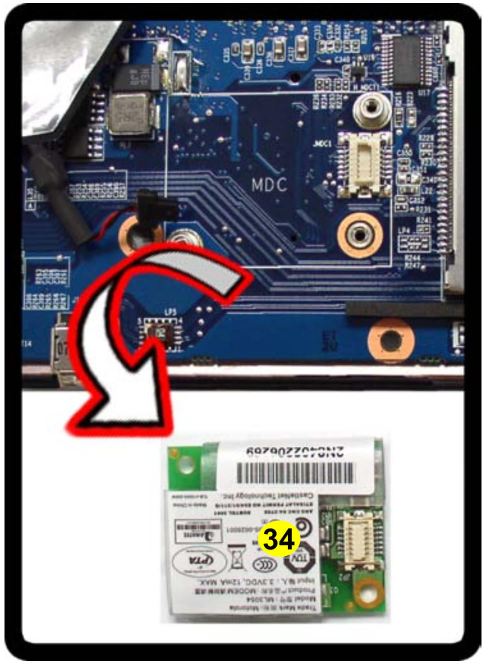
e. Lift the top case off the computer.
f. Remove the screws and disconnect the cable.
g. Lift the modem off the computer.

4. Carefully lift the top case **30** (***Figure 16e***) up and off the computer.
5. Remove screws **31** - **32** from the modem and disconnect cable **33**.
6. Lift the modem **34** (***Figure 16g***) up and off the computer.

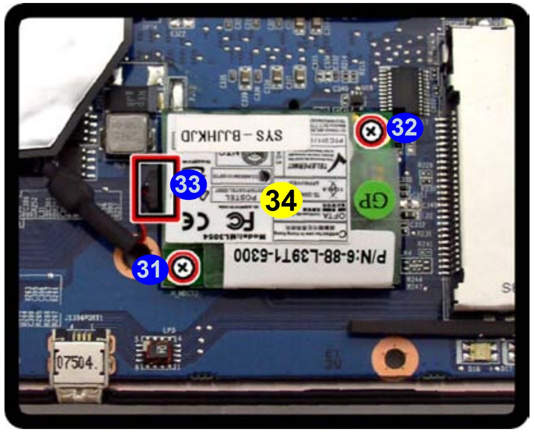
e.



g.



f.



30. Top Case
34. Modem

- 2 Screws

Appendix A:Part Lists

This appendix breaks down the ***M860TU*** series notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

Note: This section indicates the *manufacturer's* part numbers. Your organization may use a different system, so be sure to cross-check any relevant documentation.

Note: Some assemblies may have parts in common (especially screws). However, the part lists DO NOT indicate the total number of duplicated parts used.

Note: Be sure to check any update notices. The parts shown in these illustrations are appropriate for the system at the time of publication. Over the product life, some parts may be improved or re-configured, resulting in *new* part numbers.

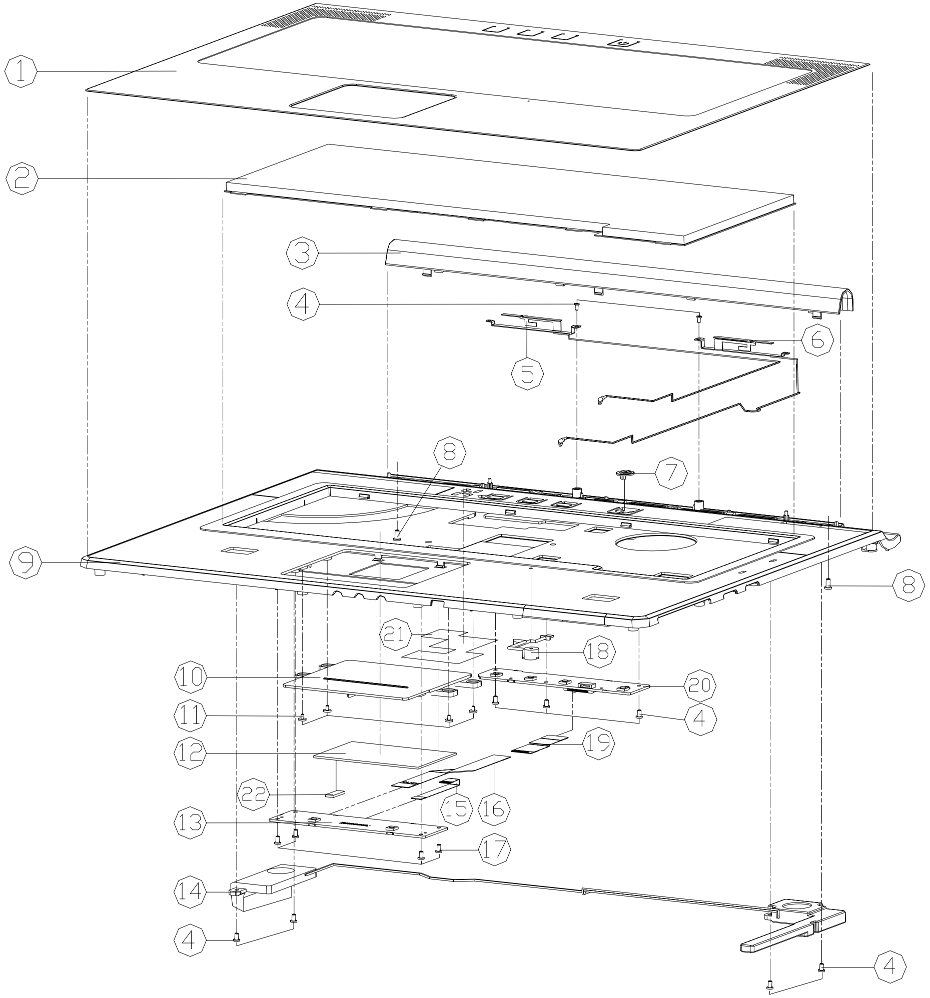
Part List Illustration Location

The following table indicates where to find the appropriate part list illustration.

Table A - 1
Part List Illustration Location

Part	M860TU
Top without Fingerprint	*page A - 3*
Top with Fingerprint	*page A - 4*
Bottom	*page A - 5*
LCD	*page A - 6*
DVD-ROM Drive	*page A - 7*
Combo Drive	*page A - 8*
HDD	*page A - 9*

Top without Fingerprint



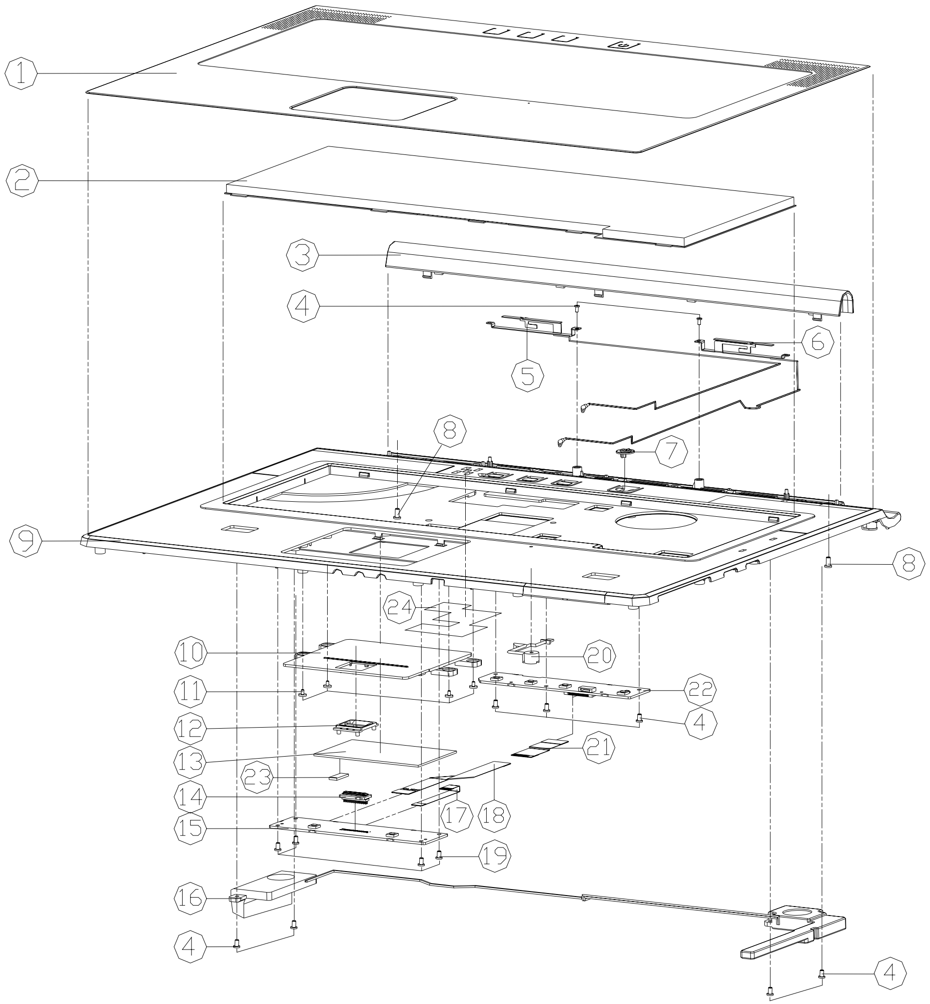
ITEM	PART NAME	PART NO	REMARK
1	AL PLATE FOR TOP CASE (切除按鍵上方)FOR M860TU 無鉛	6-33-M8602-012	
2	KEYBOARD(OPTION)	6-80-M55G0-013-1	
3	HINGE COVER (卡鉤加至0.8MM厚) FOR M860TU無鉛	6-42-M8602-052	
4	SCREW M2*4L KI BNI ICT NY 無鉛	6-35-B9120-4RA	
5	ANTENNA WLAN 2.4G/3.3G/5G PIFA WM3 (BLACK) 無鉛	6-23-7M860-031	
6	ANTENNA WLAN 2.4G/3.3G/5G PIFA WM2 (GRAY) 無鉛	6-23-7M860-021	
7	POWER KNOB LENS (加色粉)FOR M860TU 無鉛	6-42-M8602-082	
8	SCREW M2.5*5L KI BK/Z ICT NY 無鉛	6-35-B6125-5RA	
9	TOP CASE MODULE (加切 LCD 理線槽) FOR M860TU無鉛	6-39-M8602-012	
10	T/P COVER (W/O FINGER)T/P 區降0.15MM) MODULE FOR M860TU無鉛	6-42-M8602-101	
11	SCREW M2.5X3L P1 NI ICT NY 頭徑8.0MM,頭厚0.8MM圓型盤頭(無鉛)	6-35-A1125-3R0	
12	TOUCH PAD SYNAPTICS TM-00398-001 M740S 無鉛	6-49-M74S2-010	
13	CLICK BOARD V3.0 (W/O FP) M860TU 無鉛	6-77-M8602-D03-1	
14	SPEAKER L/R ø18,2W,4?,202MM/142MM ,P18CEG0 無鉛	6-23-5M860-011	
15	FFC CABLE FOR CLICK BOARD TO T/P 12P PITCH=0.5 L=54.3MM M860TU 無鉛	6-43-M8600-030	
16	FFC CABLE FOR CLICK BOARD TO M/B 10P PITCH=1.0 L=100MM M860TU 無鉛	6-43-M8600-020	
17	SCREW M2*3.5L KI NI ICT NY (ø3.8 T=0.4) 無鉛	6-35-B1120-3R5-1	
18	MIC. 6MM*3.5(EM6035-BOL-403) 2V?10V 2.2K W/CABLE L=79MM M860TU 無鉛	6-23-EM860-011	
19	FFC CABLE FOR BUTTON BD TO M/B 12P PITCH=1.0 L=40.2MM M860TU 無鉛	6-43-M8600-010	
20	BUTTON BOARD V3.0 M860TU 無鉛	6-77-M860W-D03	
21	MYLAR 45*23*0.2 , L型(BLACK , G4000) FOR TOP CASE M860TU 無鉛	6-40-M8602-070	
22	TOUCH PAD SPONGE(15*8*6) +G9000 FOR M860TU 無鉛	6-47-0019A-154	

Figure A - 1

Top without Fingerprint

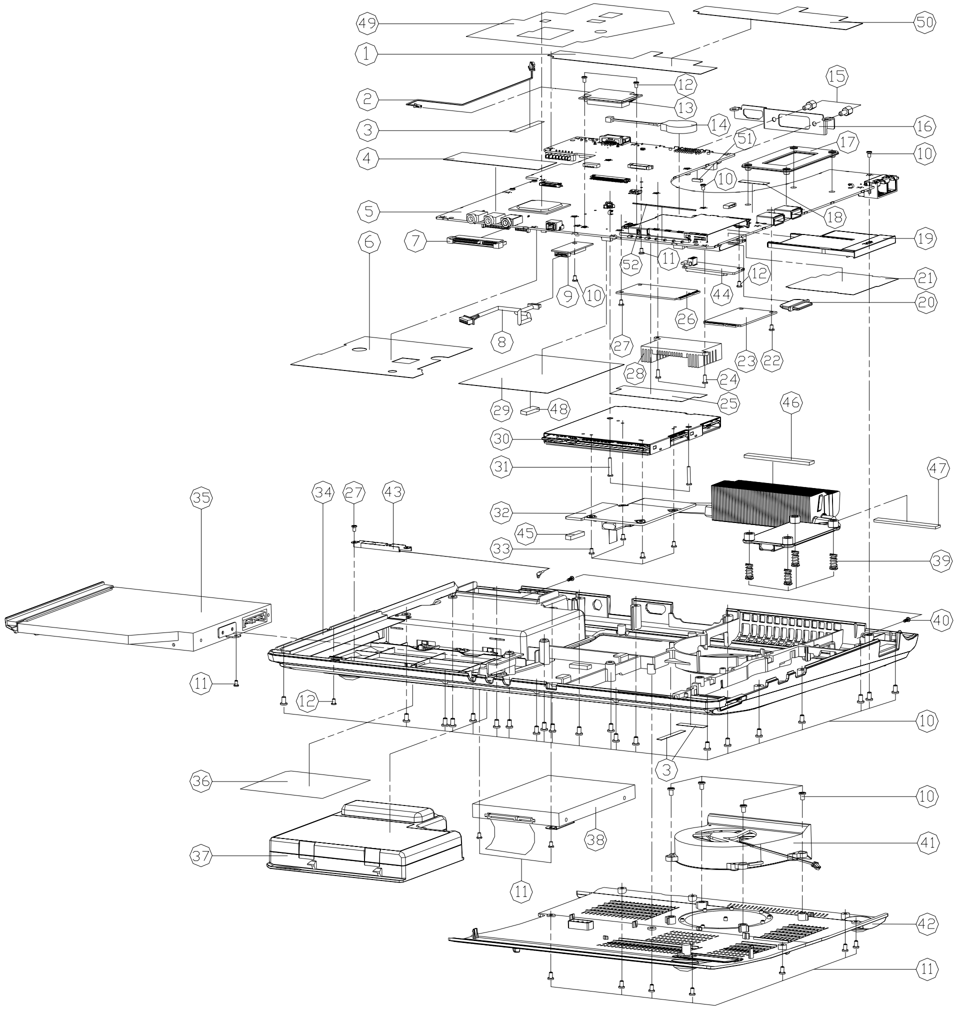
Top with Fingerprint

Figure A - 1
Top with Fingerprint



ITEM	PART NAME	PART NO	REMARK
1	AL PLATE FOR TOP CASE (切除按鍵上方)FOR M860TU 無鉛	6-33-M8602-012	
2	KEYBOARD(OPTION)	6-80-M55G0-013-1	
3	HINGE COVER (卡鉤加至0.8MM厚) FOR M860TU無鉛	6-42-M8602-052	
4	SCREW M2*4L KI BNI ICT NY 無鉛	6-35-B9120-4RA	
5	ANTENNA WLAN 2.4G/3.3G/5G PIFA WM3 (BLACK) 無鉛	6-23-7M860-031	
6	ANTENNA WLAN 2.4G/3.3G/5G PIFA WM2 (GRAY) 無鉛	6-23-7M860-021	
7	POWER KNOB LENS (加色粉) FOR M860TU 無鉛	6-42-M8602-082	
8	SCREW M2.5*5L KI BK/Z ICT NY 無鉛	6-35-B6125-5RA	
9	TOP CASE MODULE (加切 LCD 理線槽) FOR M860TU無鉛	6-39-M8602-012	
10	T/P COVER (WITH FINGER)(T/P區降0.15MM) MODULE M860TU無鉛	6-42-M8602-201	
11	SCREW M2.5X3L P1 NI ICT NY 頭徑8.0MM,頭厚0.8MM圓型盤頭(無鉛)	6-35-A1125-3R0	
12	FINGER PRINT COVER (加高 0.2MM) FOR M860TU 無鉛	6-42-M8602-062	
13	TOUCH PAD SYNAPTICS TM-00398-001 M740S 無鉛	6-49-M74S2-010	
14	FINGERPRINT BOARD V1.0 M860TU 無鉛	6-77-M860F-D01	
15	CLICK BOARD V3.0 (W/FP) M860TU 無鉛	6-77-M8602-D03	
16	SPEAKER L/R ø18,2W,4?,217MM/149MM ,P18CEG0無鉛	6-23-5M860-011	
17	FFC CABLE FOR CLICK BOARD TO T/P 12P PITCH=0.5 L=54.3MM M860TU 無鉛	6-43-M8600-030	
18	FFC CABLE FOR CLICK BOARD TO M/B 10P PITCH=1.0 L=100MM M860TU 無鉛	6-43-M8600-020	
19	SCREW M2*3.5L KI NI ICT NY (ø3.8 T=0.4) 無鉛	6-35-B1120-3R5-1	
20	MIC. 6MM*3.5(EM6035-BOL-403) 2V?10V 2.2K W/CABLE L=79MM M860TU 無鉛	6-23-EM860-011	
21	FFC CABLE FOR BUTTON BD TO M/B 12P PITCH=1.0 L=40.2MM M860TU 無鉛	6-43-M8600-010	
22	BUTTON BOARD V3.0 M860TU 無鉛	6-77-M860W-D03	
23	TOUCH PAD SPONGE(15*8*6) +G9000 FOR M860TU 無鉛	6-47-0019A-154	
24	MYLAR 45*23*0.2 , L型(BLACK , G4000) FOR TOP CASE M860TU 無鉛	6-40-M8602-070	

Bottom



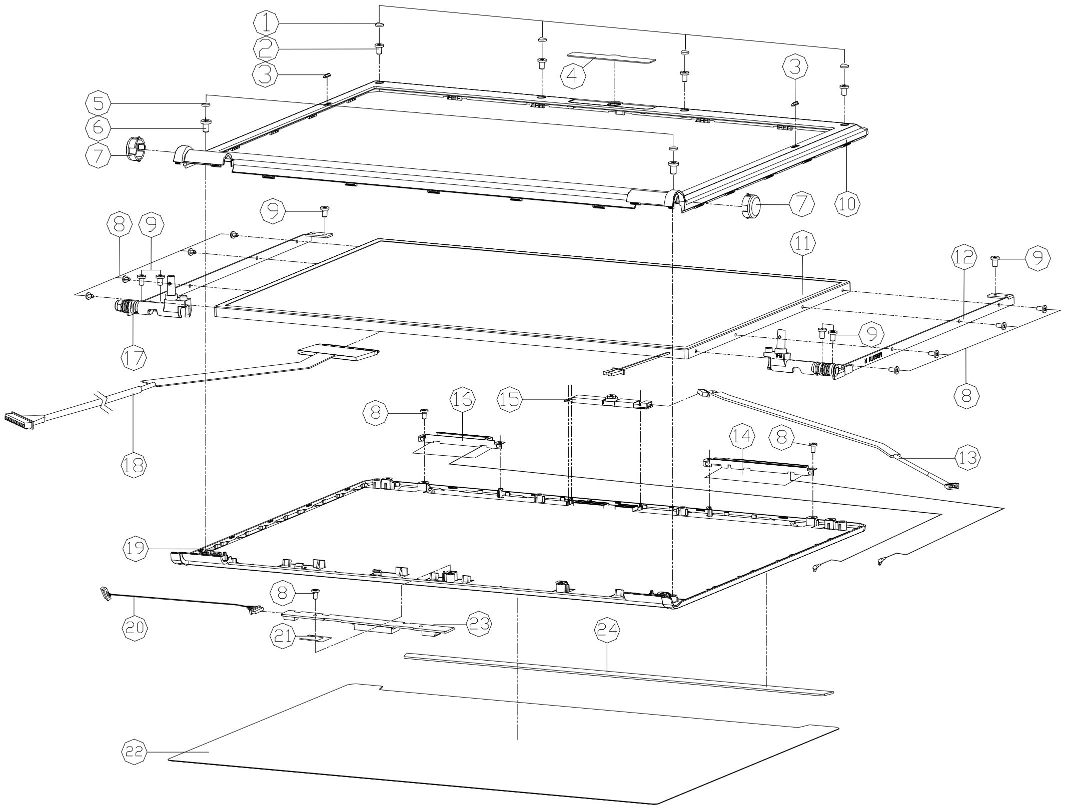
ITEM	PART NAME	PART NO	REMARK
1	MYLAR FOR HOT-KEY PCB ON MB M860TU 無鉛	6-40-M860S-022	
2	MDC CABLE (GOLD) M860TU 無鉛	6-43-M860U-011	
3	TAPE MYLAR (B),MYLAR M550J 無鉛	6-40-M55J2-020	
4	MYLAR FOR CLICK PCB ON MB M860TU 無鉛	6-40-M860S-011	
5	MAIN BOARD V3.0 M860TU 無鉛	6-77-M8600-D03	
6	MYLAR FOR MXM ON MB M860TU 無鉛	6-40-M860S-032	
7	CON G22 D-T SATA HDD R-A/F SAT-22K1G 無鉛	6-21-14000-122	
8	BLUETOOTH CABLE 8P AWG.30 華力,M660N 無鉛	6-43-M66NB-010	
9	BLUETOOTH V2.0 [illegible] 藍天3 互億 8 PIN USB CSR BC04 A6 [illegible] WITH MS BT SOFTWARE [illegible] 無鉛	6-88-M5S45-390	(OPTION)
9	BLUETOOTH V2.0 [illegible] 8 PIN USB CSR BC04 A6 [illegible] WITH MS BT SOFTWARE [illegible] 無鉛	6-88-M5S45-620	(OPTION)
10	SCREW M2.5*5L KI BK/Z ICT NY- 無鉛	6-35-B6125-5RA	
11	SCREW M2*4L KI BZ ICT NY- 無鉛	6-35-B6120-4RA	
12	SCREW M2*3L K1 NI ICT NY 無鉛	6-35-B1120-3RA	
13	MODEM AZALIA+AC97 ML3054(2.0D) 凱碩 MDC 12 PIN MOTOROLA (LOW POWER) L390T 無鉛	6-88-L39T1-5300	(OPTION)
14	BAT. 20MM 3V 210MAH W/CABLE 56MM CR2032C1-LF-MITSUBISHI 無鉛	6-23-22015-P2C	
15	HEX STUD (SUM22 NI-PL) 11MM GTY-PATCH 無鉛	6-34-07009-012	
16	IO BRACKET DVI SUS430 M860TU 無鉛	6-33-M860S-011	
17	CPU SUPPORTER MODULE M860TU 無鉛	6-33-M860S-101	
18	MYLAR FOR CCD CONN ON MB M860TU 無鉛	6-40-M860S-041	
19	DUMMY NEW CARD PC+ABS TN120R 無鉛	6-42-T12R3-011	
20	M520G CARD READER RUBBER 無鉛	6-47-M52G8-010	
21	MYLAR FOR NEW CARD M860TU 無鉛	6-40-M860S-062	
22	SCREW M2.5*5L KI BK/Z ICT NY-(三價絡)無鉛	6-35-B6125-5RA-G	
23	WCDMA HSDPA MC8775 SIERRAWIRELESS MIN-CARD USB 3.5G 無鉛	6-88-M72SW-720	
24	SCREW M2*5L K1 NI ICT NY 無鉛	6-35-B1120-5R0	
25	MYLAR 64X30X0.3MMBLACK(DDR SOCKET POSITION) 無鉛	6-40-M66NS-040	
26	WLAN 802.11BG AW-GU702 海華 MINI-CARD USB RTL8187B WITH POWER SAVING 無鉛	6-88-M5SS2-7000	(OPTION)
26	WLAN 802.11A+G+N INTEL SHIRLEY PEAK (WIF 無鉛	6-88-M72T2-4210	(OPTION)
26	WLAN 802.11A+G+N INTEL SHIRLEY PEAK 1X2 MI 無鉛	6-88-M72T2-4240	(OPTION)
26	(SAMPLE)WLAN 802.11A+G+N INTEL SHIRLEY PEA 無鉛	6-S88-M72T2-4241	(OPTION)
26	(SAMPLE)WLAN 802.11A+G+N INTEL SHIRLEY PE 無鉛	6-S88-M72T2-4211	(OPTION)
27	SCREW M2*4L KI BNI ICT NY 無鉛	6-35-B9120-4RA	
28	NORTH BRIDGES HEATSINK MODULE M860TU 無鉛	6-31-M860N-200	
29	MYLAR FOR HDD ON MB M860TU 無鉛	6-40-M860S-052	
30	VGA BOARD NVIDIA NB8E-GTX(P398 A02) GDDR3VGA BOARD NVIDIA NB8E-GTX(P398 A02) GDDR3 無鉛	6-77-M860L-0A0	(OPTION)
30	VGA BOARD NVIDIA NB9P-GE2(P616 A03)GDDR3 2 無鉛	6-77-M860L-D02	(OPTION)
31	SCREW M2.5*12L KI BK/Z ICT NY 無鉛	6-35-B6125-120	
32	CPU HEATSINK NB8E-GTX MODULE M860TU 無鉛	6-31-M860N-401	
33	SCREW M2*3.5L KI NI ICT NY (ø3.8 T=0.4) 無鉛	6-35-B1120-3R5-1	
34	BOTTOM CASE MODULE (PVT) M860TU 無鉛	6-39-M8603-012	
35	SATA DVD COMBO 24X/8X ASS'Y M860TU 無鉛	6-79-M860TU0X-010	(OPTION)
35	SATA DVD SUPER MULTI 24X/8X ASS'Y M860TU 無鉛	6-79-M860TU0Q-000	(OPTION)
36	PRODUCT LABEL M860TU 無鉛	6-45-M8603-010	
37	BAT.P S LI 14.8V/4.4AH 4S2P SMP/BAK 2.2A 無鉛	6-87-M860S-4P4	
37	BAT.P S LI 14.8V/4.4AH 4S2P GLW/PANASONIC 無鉛	6-87-M860S-454	
38	W/O HDD ASS'Y M860TU 無鉛	6-79-M860TU0J-010	
39	SCREW M2.5*0.45P*9.5,D1=3.5,L=9.5,S=2.5 B NI ICT NY(W/SPRING) 無鉛	6-35-41025-095	
40	SCREW M2*6L K1 BZ ICT NY 無鉛	6-35-B6120-6RA	
41	CPU FAN MODULE 55MM 5V 0.33A 4000RPM FORCECON M860TU 無鉛	6-31-M860S-102	
42	BOTTOM CASE COVER MODULE M860TU 無鉛	6-42-M8603-102	
43	ANTENNA BLUETOOTH 2.4G/5G PIFA BT (黑色) 205MM 惠貿 M860TU 無鉛	6-23-7M860-051	
44	3G SIM BOARD V3.0 M860TU 無鉛	6-77-M860G-D03	
45	GASKET (28*7*7) FOR HEAT SINK M860TU 無鉛	6-47-00190-282	
46	GASKET (L70*W8*H4)MM FOR LCD BACK COVER L295N 無鉛	6-47-00190-709	
47	GASKET W5*H3*L65 無鉛	6-47-00190-068	
48	HDD CUSHION PORON 15X6*1.5 M860TU 無鉛	6-47-M860J-020	
49	AL FOIL +MYLAR FOR SOUTH BRIDGE M860TU 無鉛	6-40-M8602-041	
50	HOT KEY THERMAL FOIL(0.1MM) + BLACK MYLAR 無鉛	6-40-M8602-050	
51	LCD SPONGE,MH32 (65X3X2) M620NE 無鉛	6-47-M62E1-050	
52	EMI GASKET L20*W6*H8 無鉛	6-47-00190-20F	

Figure A - 2
Bottom

A.Part Lists

LCD

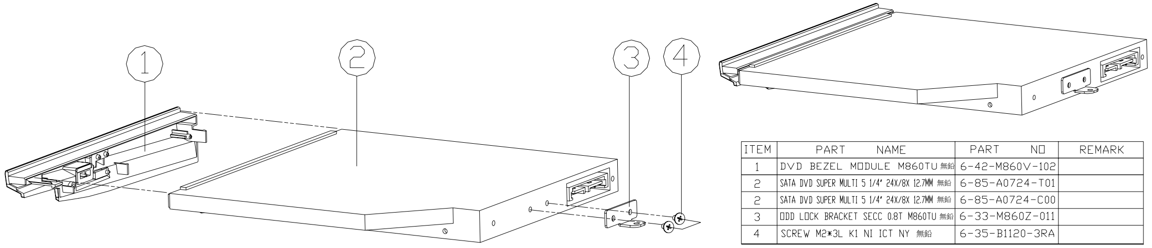
Figure A - 3
LCD



ITEM	PART NAME	PART NO	REMARK
1	FRONT COVER TOP RUBBER SILICONE M860TU 無鉛	6-47-M8601-011	
2	SCREW M2*5L K1 NI ICT NY 無鉛	6-35-B1120-5R0	
3	LCD FRONT COVER RUBBER M720S 無鉛	6-47-M72S1-030	
4	CCD COSMETIC PLATE MSK(加背膠) M860TU 無鉛	6-42-M8601-021	FOR CCD
4	CCD COSMETIC PLATE(無印刷) FR700(加背膠)M860TU無鉛	6-42-M860T-011	FOR W/O CCD
5	FRONT COVER BOTTOM RUBBER SILICONE M860TU 無鉛	6-47-M8601-021	
6	SCREW M2.5*6L K BZ ICT NY 無鉛	6-35-82125-6RA	
7	HINGE COSMETIC COVER PC+ABS CM6140 水電鍍 FOR M860TU 無鉛	6-42-M8601-011	
8	*(非耐落)SCREW M2*3L K1 NI ICT GTY-PATCH無鉛	6-35-B1120-3RE	
9	SCREW M2.5*4L K1 BK/O ICT NY 無鉛	6-35-B4125-4RA	
10	LCD FRONT COVER MODULE M860TU 無鉛	6-39-M8601-012	
11	LCD 15.4" WXGA AU B154EW08 V.1 GLARE TYPE 無鉛	6-50-LC261-G01	(OPTION)
11	LCD 15.4" WSXGA+ AU B154SW01 V.5 (QD15AL02 無鉛	6-50-LA265-G00	(OPTION)
11	LCD AU B154PW01 V.1 15.4" WXGA+ (1440X90 無鉛	6-50-L7261-G01	(OPTION)
11	LCD 15.4" WUXGA LG LP154WU1-TLB1 6.5MM 無鉛	6-50-LB265-L01	(OPTION)
11	LCD 15.4" WXGA AU B154EW08 V.1 GLARE TYPE 無鉛	6-50-LC261-G01-C	(OPTION)
11	LCD 15.4" WSXGA+ AU B154SW01 V.5 (QD15AL02 無鉛	6-50-LA265-G00-C	(OPTION)
12	LCD HINGE R (SECC+SK7) M860TU 無鉛	6-33-M8601-013	
13	CABLE CCD 5P (GOLD) M860TU 無鉛	6-43-M860T-011	FOR CCD
14	ANTENNA WCDMA PIFA 3G (BLACK) 520MM 惠貿 M860TU無鉛	6-23-7M860-040	(OPTION)
15	UVC CAMERA BISON FIX BN28M4S7-000 1.3M M740TU無鉛	6-88-M740C-4921	(OPTION)
15	UVC CAMERA BISON FIX BN2824S7-010 2M M740TU 無鉛	6-88-M740C-4911	(OPTION)
16	ANTENNA WLAN 2.4G/3.3G/5G PIFA WM1 (BLACK) 無鉛	6-23-7M860-010	
17	LCD HINGE L(SECC+SK7) M860TU 無鉛	6-33-M8601-023	
18	LCD CABLE LVDS (GOLD) M860TU 無鉛	6-43-M8601-012	(OPTION)
19	LCD BACK COVER MODULE M860TU 無鉛	6-39-M8601-022	
20	INVERTER CABLE 6P AWG30 (GOLD) M860TU 無鉛	6-43-M860R-011	
21	INVERTER MYLAR (FR83+NITTON 5011) M760S無鉛	6-40-M76S1-010	
22	AL PLATE FOR BACK COVER(AL-1050) M860TU 無鉛	6-33-M8601-031	
23	INVERTER MODULE R0A MITAC DA-1A08-CV02NL (M660JEINT-D) M660SR 無鉛	6-76-M6R6R-010	(OPTION)
23	INVERTER MODULE 1A SUMIDA TWS-400-9658(M660SRUINT-E) M660SRU 無鉛	6-76-M660R-011	(OPTION)
24	中性 LOGO MR200(加背膠) FOR M860TU無鉛	6-42-M8601-032	

DVD-ROM Drive

Figure A - 4
DVD-ROM Drive

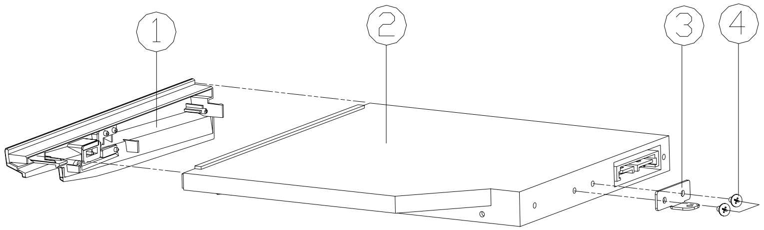


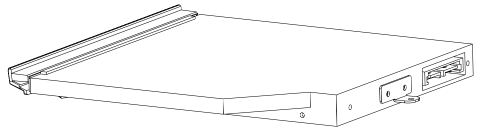
ITEM	PART NAME	PART NO	REMARK
1	DVD BEZEL MODULE M860TU 無鉛	6-42-M860V-102	
2	SATA DVD SUPER MULTI 5 1/4" 24X/8X 12.7MM 無鉛	6-85-A0724-T01	
2	SATA DVD SUPER MULTI 5 1/4" 24X/8X 12.7MM 無鉛	6-85-A0724-C00	
3	ODD LOCK BRACKET SECC 0.8T M860TU 無鉛	6-33-M860Z-011	
4	SCREW M2*3L K1 NI ICT NY 無鉛	6-35-B1120-3RA	

A.Part Lists

Combo Drive

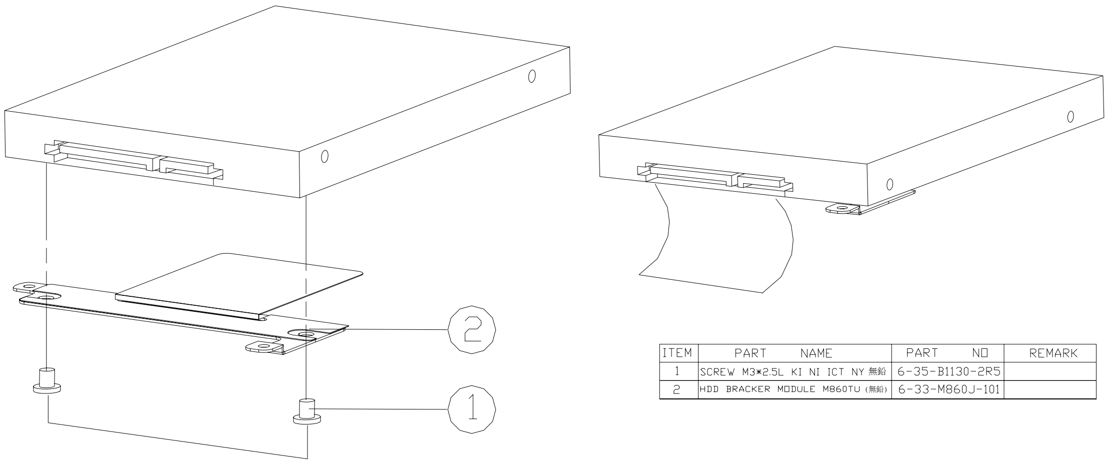
Figure A - 5
Combo Drive





ITEM	PART NAME	PART NO	REMARK
1	COMBO DVD BEZEL MODULE M860TU 無鉛	6-42-M860X-102	
2	SATA DVD COMBO 5 1/4" 24X/8X 12.7MM CRX890S SNO 無鉛	6-85-90724-C01	
3	ODD LOCK BRACKET SECC 0.8T M860TU 無鉛	6-33-M860Z-011	
4	SCREW M2*3L K1 NI ICT NY 無鉛	6-35-B1120-3RA	

HDD



ITEM	PART NAME	PART NO	REMARK
1	SCREW M3*2.5L KI NI ICT NY 無鉛	6-35-B1130-2R5	
2	HDD BRACKER MODULE M860TU (無鉛)	6-33-M860J-101	

Figure A - 6
HDD

Appendix B:Schematic Diagrams

This appendix has circuit diagrams of the ***M860TU*** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
SYSTEM BLOCK DIAGRAM - Page B - 2	*ICH9-M 4/4, Power - Page B - 17*	*Power 1.5V/0.75V - Page B - 32*
Penryn 1/2 - Page B - 3	*ODD, USB2.0 & eSATA - Page B - 18*	*Power 3.3VM/1.8VS/1.05VM - Page B - 33*
Penryn 2/2 - Page B - 4	*Clock Generator - Page B - 19*	*Power 3VS/5VS / Power S/W - Page B - 34*
Cantiga 1/6, Host - Page B - 5	*PCI-E LAN RTL8111C, RJ45RJ11 - Page B - 20*	*Power VDD3/VDD5/3.3V/5V - Page B - 35*
Cantiga 2/6, PEG - Page B - 6	*Card Reader & 1394 JMB380 - Page B - 21*	*Power VCORE - Page B - 36*
Cantiga 3/6, DDR - Page B - 7	*New Card, CCD, Fan - Page B - 22*	*Mini Card/WLAN - Page B - 37*
Cantiga 4/6, Power 1 - Page B - 8	*KBC-ITE IT8512 - Page B - 23*	*MXM PCI-E Type III - Page B - 38*
Cantiga 5/6, GND - Page B - 9	*HDMI, 3G - Page B - 24*	*Board to Board CON/TPM - Page B - 39*
Cantiga 6/6, Power 2 - Page B - 10	*LED, Screw Hole - Page B - 25*	*Button Board - Page B - 40*
DDR3 SO-DIMM 1 - Page B - 11	*Azalia CODEC ALC662 - Page B - 26*	*Click Board - Page B - 41*
DDR3 SO-DIMM 2 - Page B - 12	*Audio AMP - Page B - 27*	*Finger Printer Board - Page B - 42*
LCD - Page B - 13	*SRS, MDC, BT - Page B - 28*	*SIM Card Board - Page B - 43*
ICH9-M 1/4, SATA - Page B - 14	*DVI, INV - Page B - 29*	
ICH9-M 2/4, PCI, USB - Page B - 15	*Power Charger, DC-In - Page B - 30*	
ICH9-M 3/4 - Page B - 16	*Power GPU - Page B - 31*	

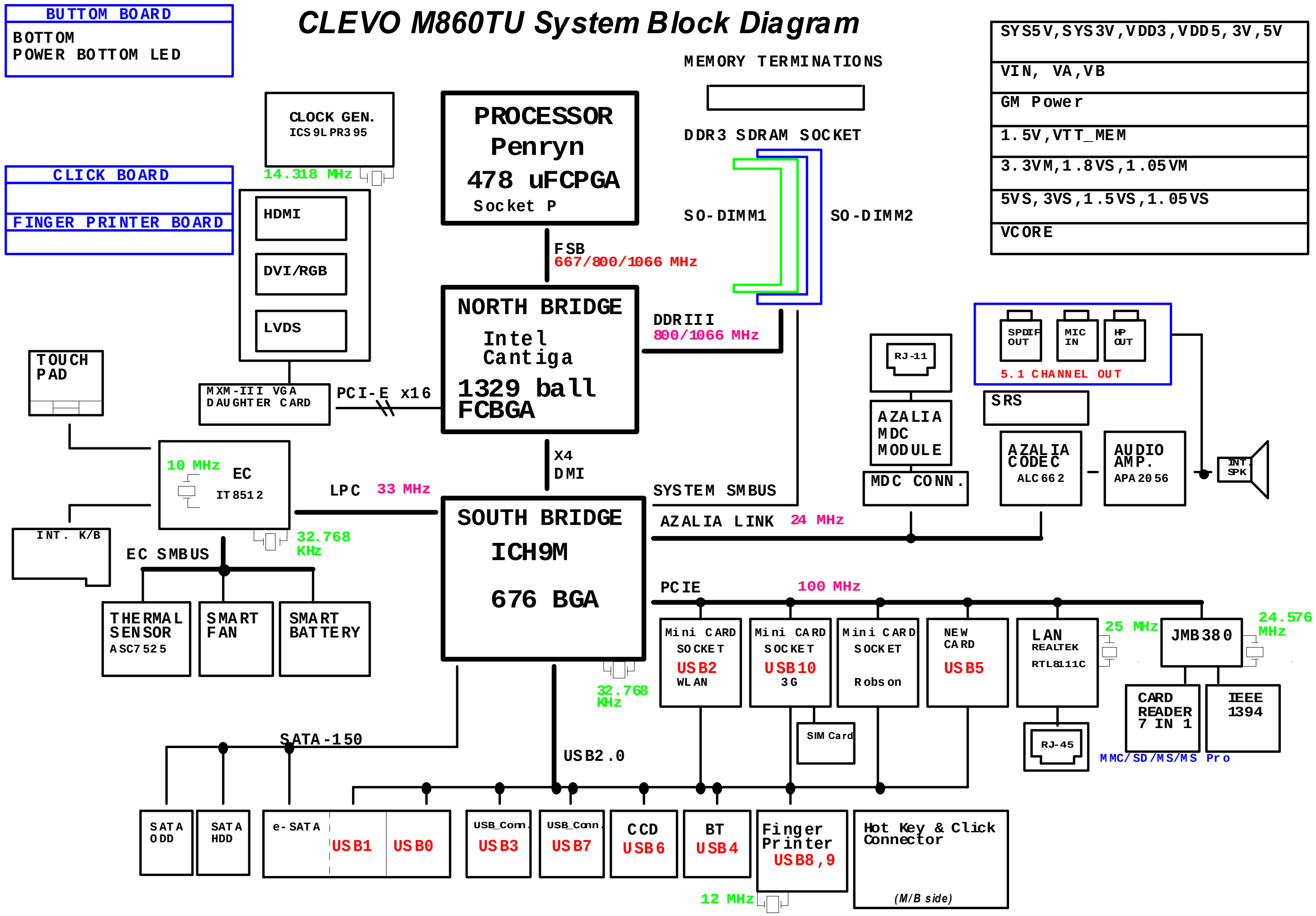
Table B - 1
Schematic Diagrams

Version Note

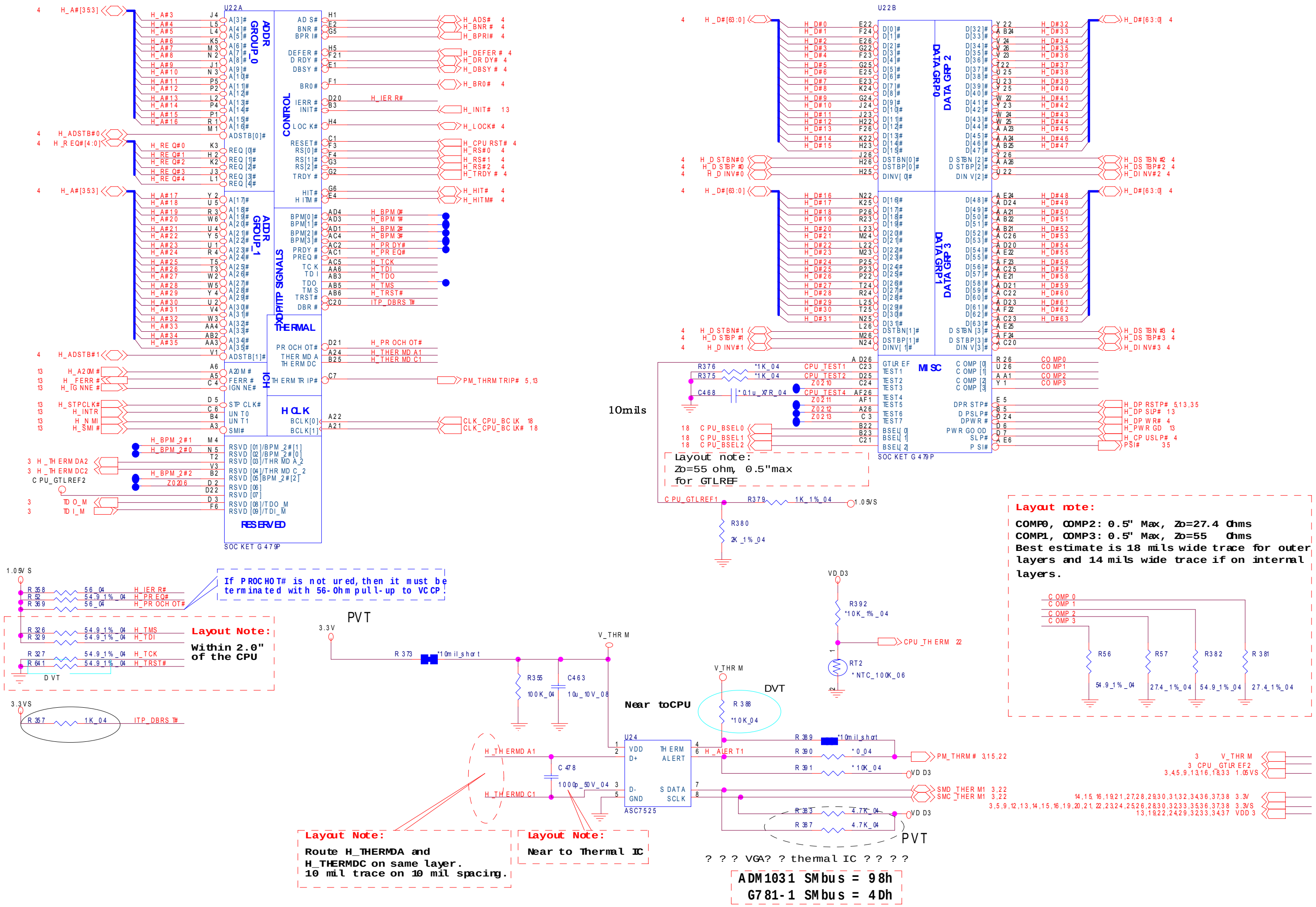
The schematic diagrams in this chapter are based upon version 6-7P-M8605-003. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

SYSTEM BLOCK DIAGRAM

Sheet 1 of 42
SYSTEM BLOCK
DIAGRAM



Penryn 1/2

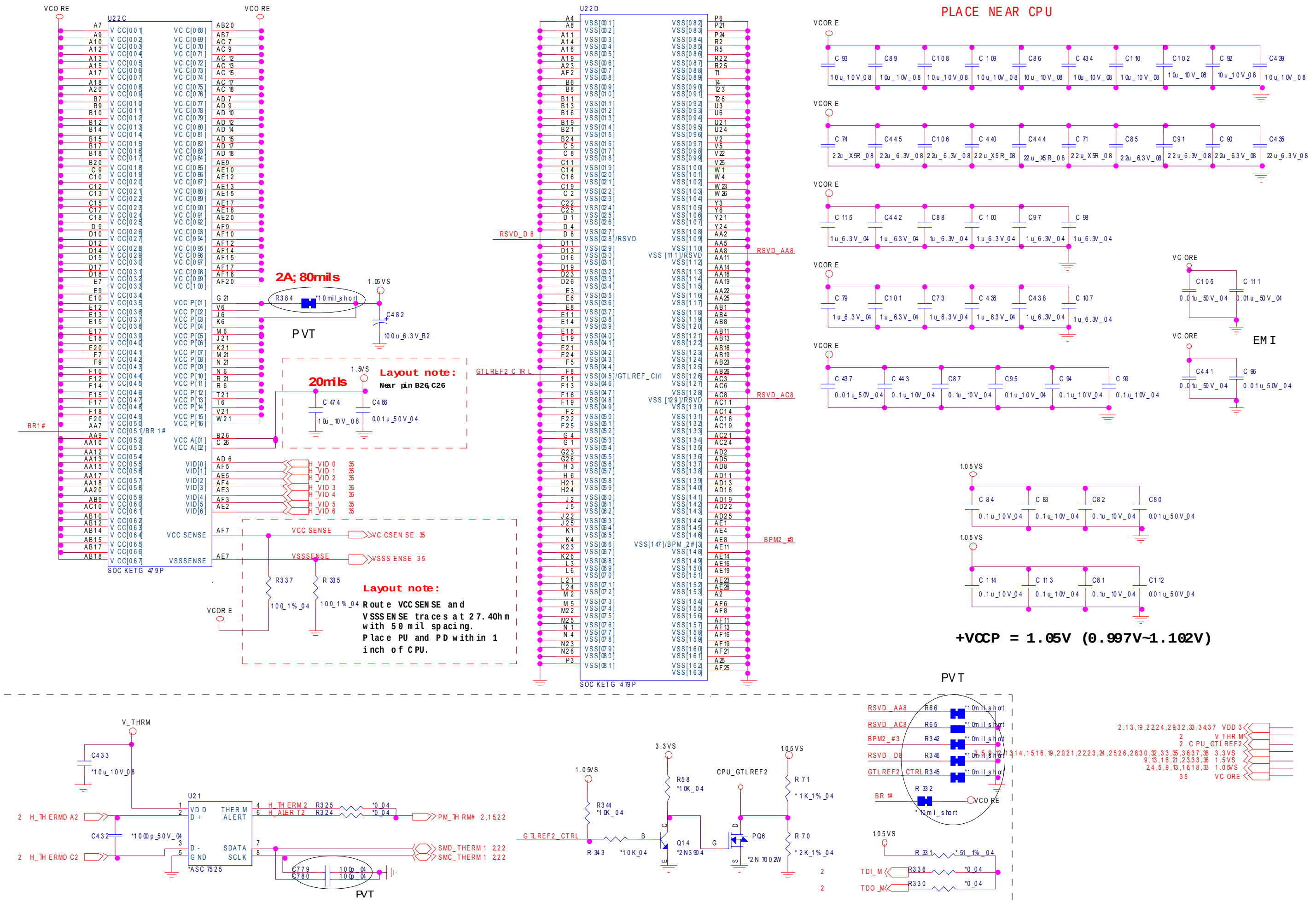


Sheet 2 of 42
Penryn 1/2

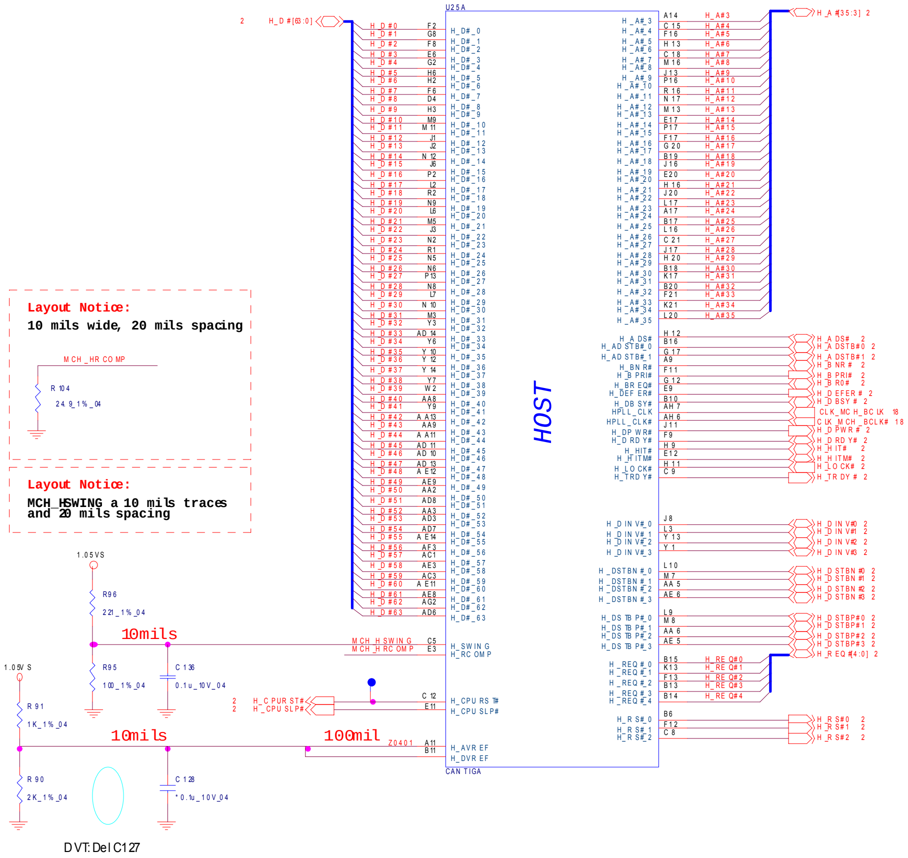
B.Schematic Diagrams

Penryn 2/2

Sheet 3 of 42
Penryn 2/2



Cantiga 1/6, Host

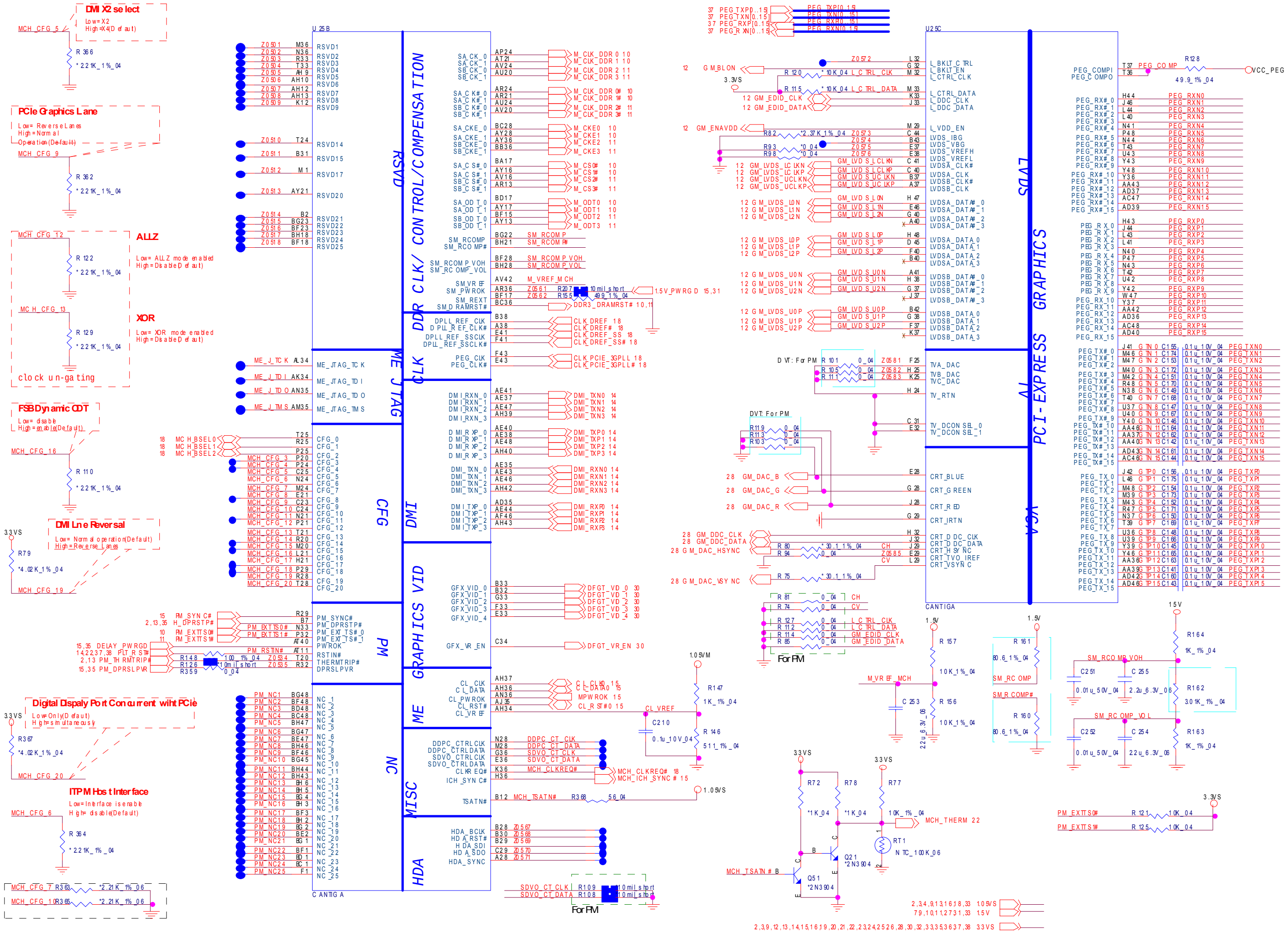


Pin Name	Strap Description	Configuration
CFG2:0	FSB Freguency	000 = 1066 010 = 800 011 = 667 Others = Reserved
CFG4:3	Reserved	
CFG5	DMI x2 Select	Low = DMI x2 High = DMI x4 (Default)
CFG6	Integrated Trusted Platform Module(ITPM) Host Interface	Low = The ITPM Host Interface is enabled High = Disabled (Default)
CFG7	Intel Management Engine Crypto Strap	Low = Intel Management Engine Crypto Transport Layer Security (TLS) cipher suite with no confidentiality High = Intel Management Engine Crypto TLS cipher suite with confidentialty (default)
CFG8	Reserved	
CFG9	PCIe Graphics Lane	Low = Reverse Lanes, 15->0, 14->1 etc High = Normal operation (default): Lane Numbered in Order
CFG10	PCIe Loopback enable	Low = Enabled High = Disabled (default)
CFG11	Reserved	
CFG12	ALLZ	Low = ALLZ mode enabled High = Disabled (default)
CFG13	XOR	Low = XOR mode enabled High = Disabled (default)
CFG15:14	Reserved	
CFG16	FSB Dynamic ODT	Low = Dynamic ODT disabled High = Dynamic ODT enabled (default)
CFG18:17	Reserved	
CFG19	DMI Lane Reversal	Low = Normal operation (Default): Lane Numbered in Order High = Reverse Lanes DMIx4 mode [(G)MCH->ICH]: (3->0, 2->1, 1->2 and 0->3) DMIx2 mode [(G)MCH->ICH]: (3->0, 2->1)
CFG20	Digital Display Port (SDVO/DP/HDMI) Concurrent with PCIe	Low = Only digital display port (SDVO/DP/iHDMI) or PCIe is operational (default) High = Digital display port (SDVO/DP/iHDMI) and PCIe are operating simultaneously via the PEG port

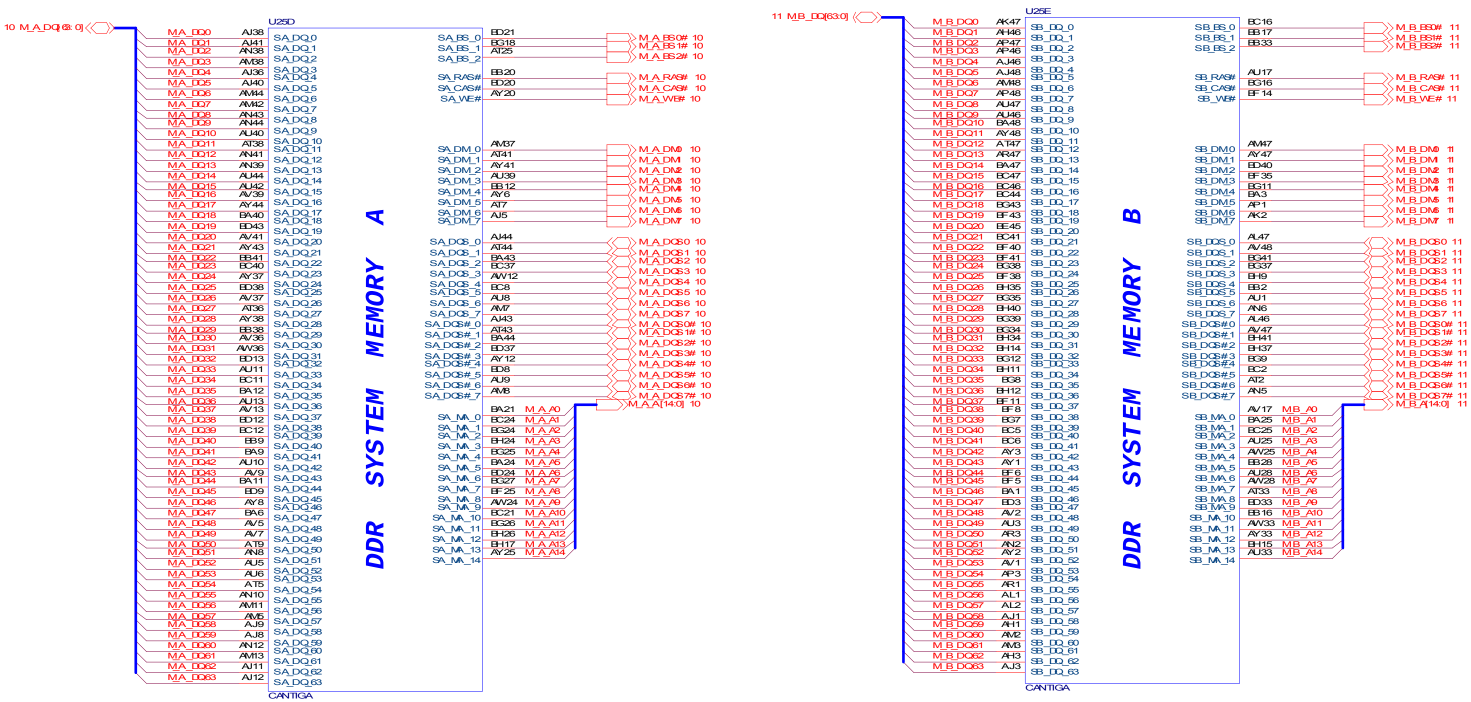
Sheet 4 of 42
Cantiga 1/6, Host

Cantiga 2/6, PEG

Sheet 5 of 42
Cantiga 2/6, PEG



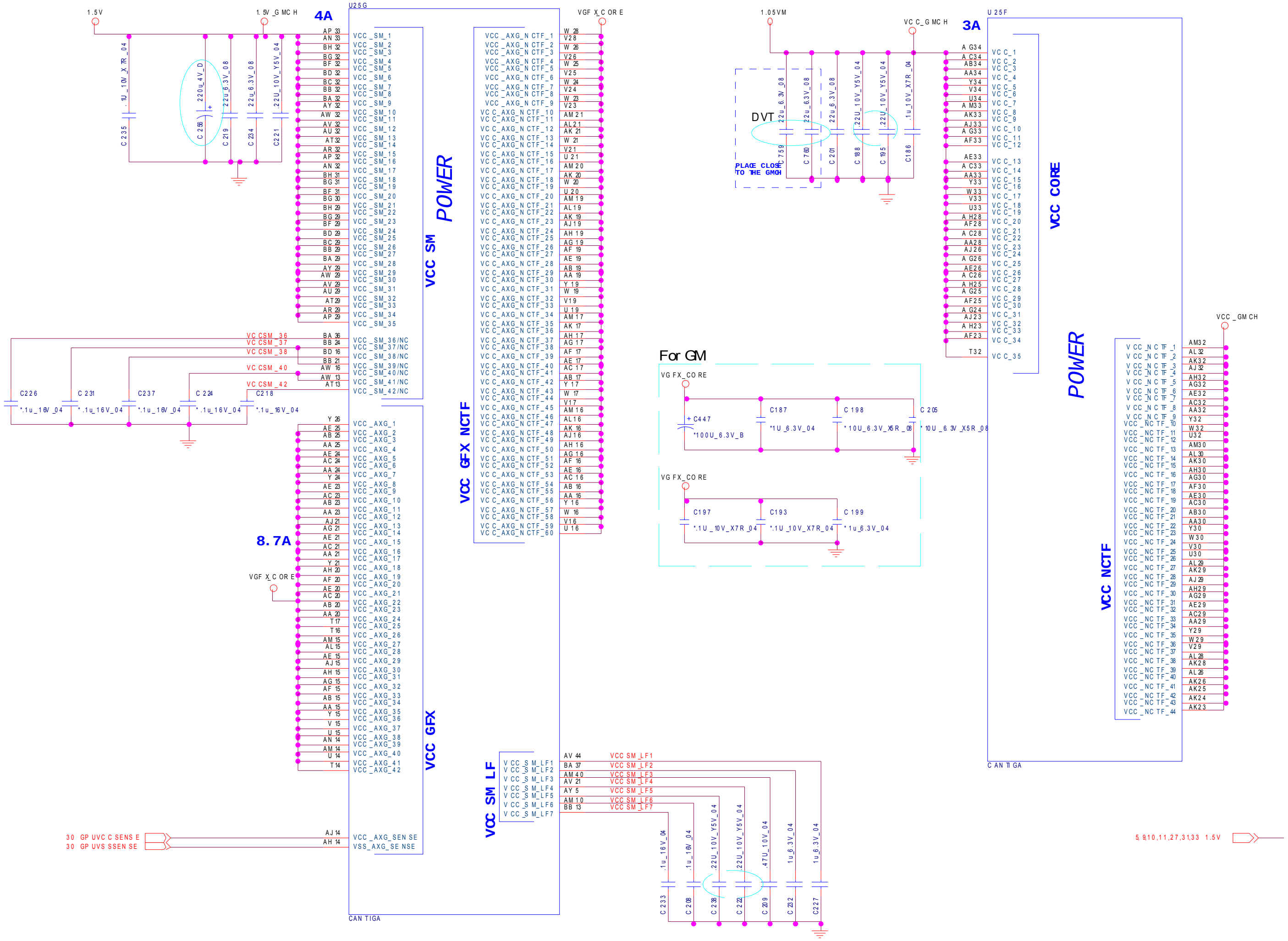
Cantiga 3/6, DDR



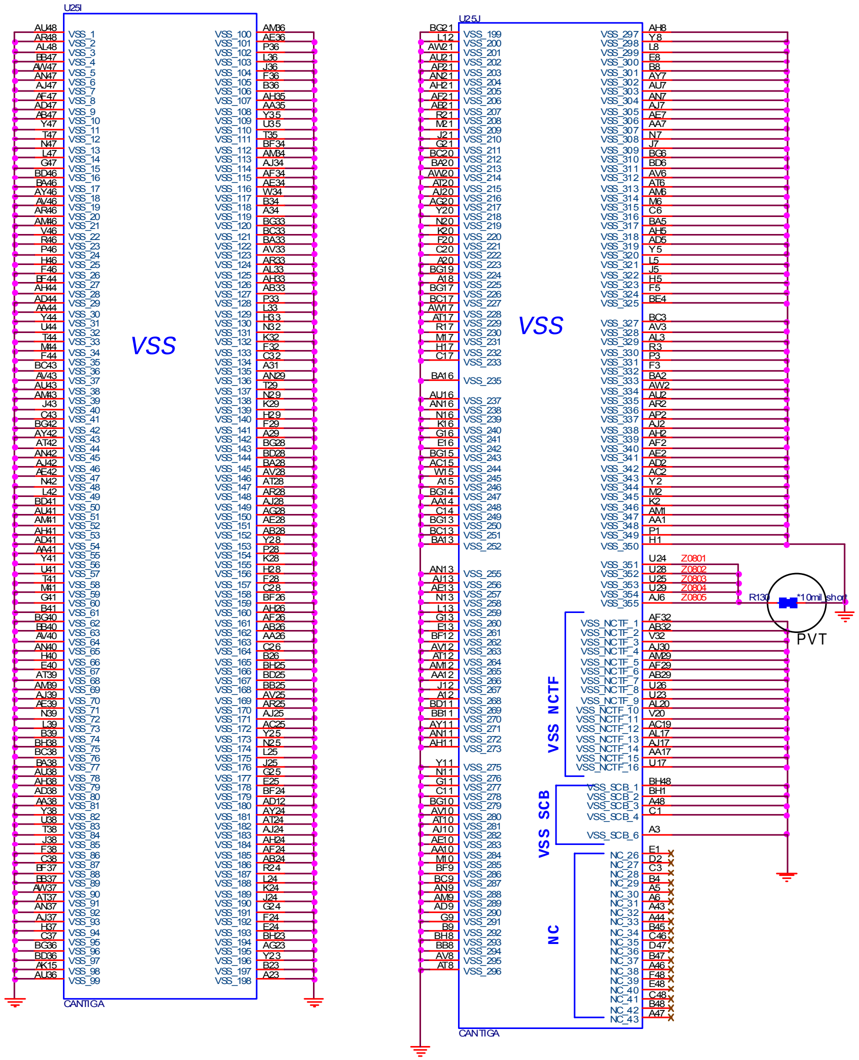
Sheet 6 of 42
Cantiga 3/6, DDR

Cantiga 4/6, Power 1

Sheet 7 of 42
Cantiga 4/6, Power
1



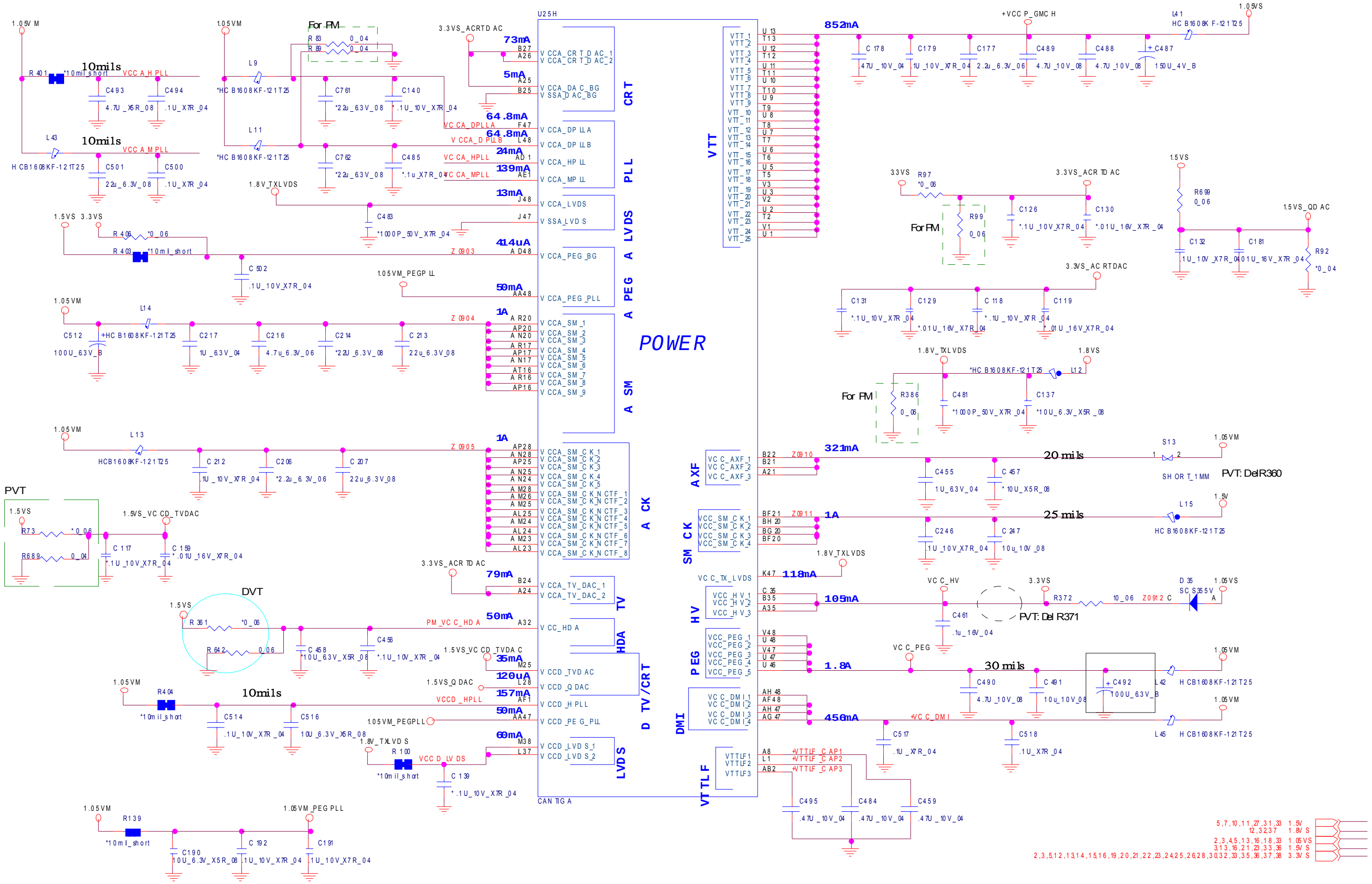
Cantiga 5/6, GND



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Cantiga 5/6, GND

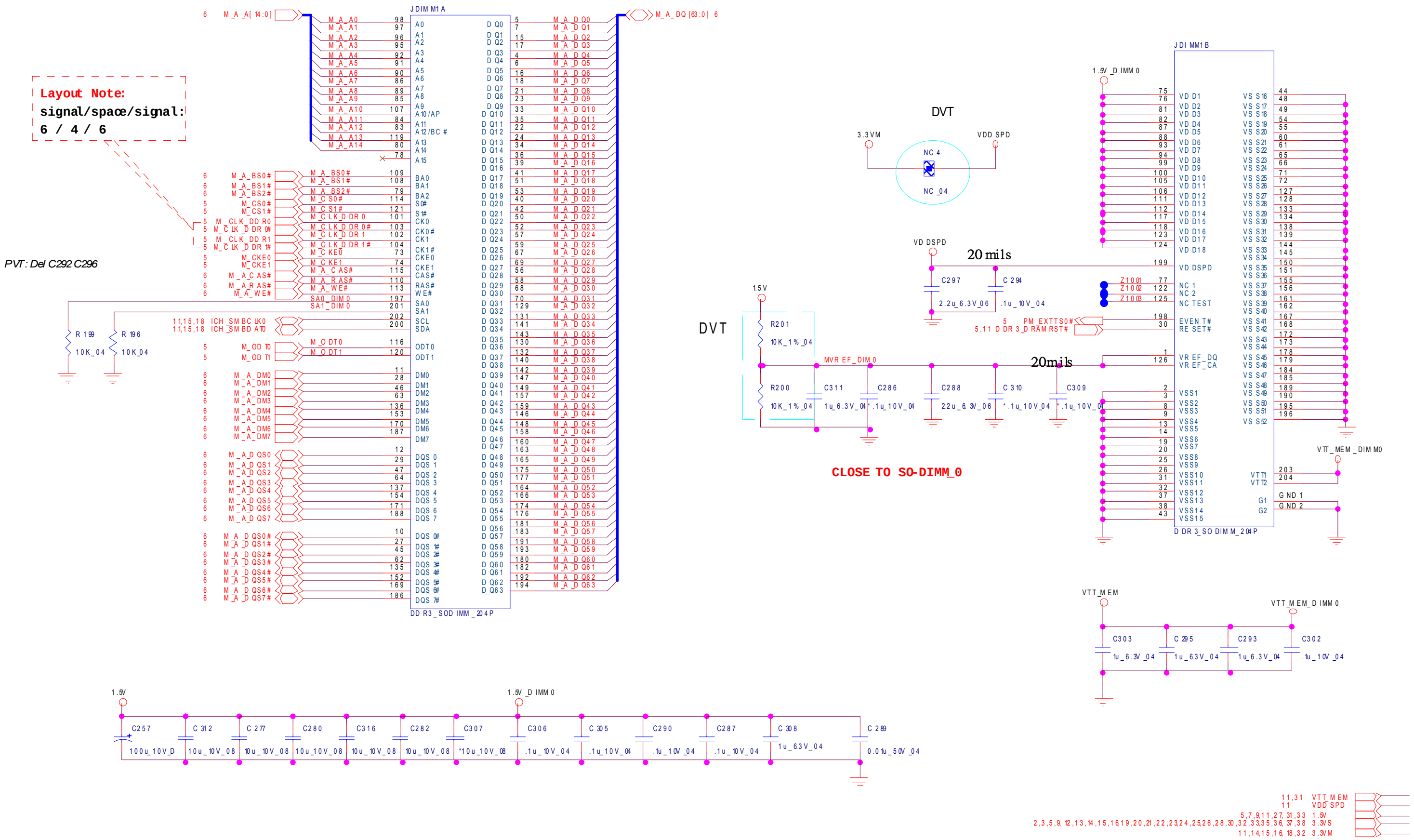
Cantiga 6/6, Power 2

Sheet 9 of 42
Cantiga 6/6, Power 2



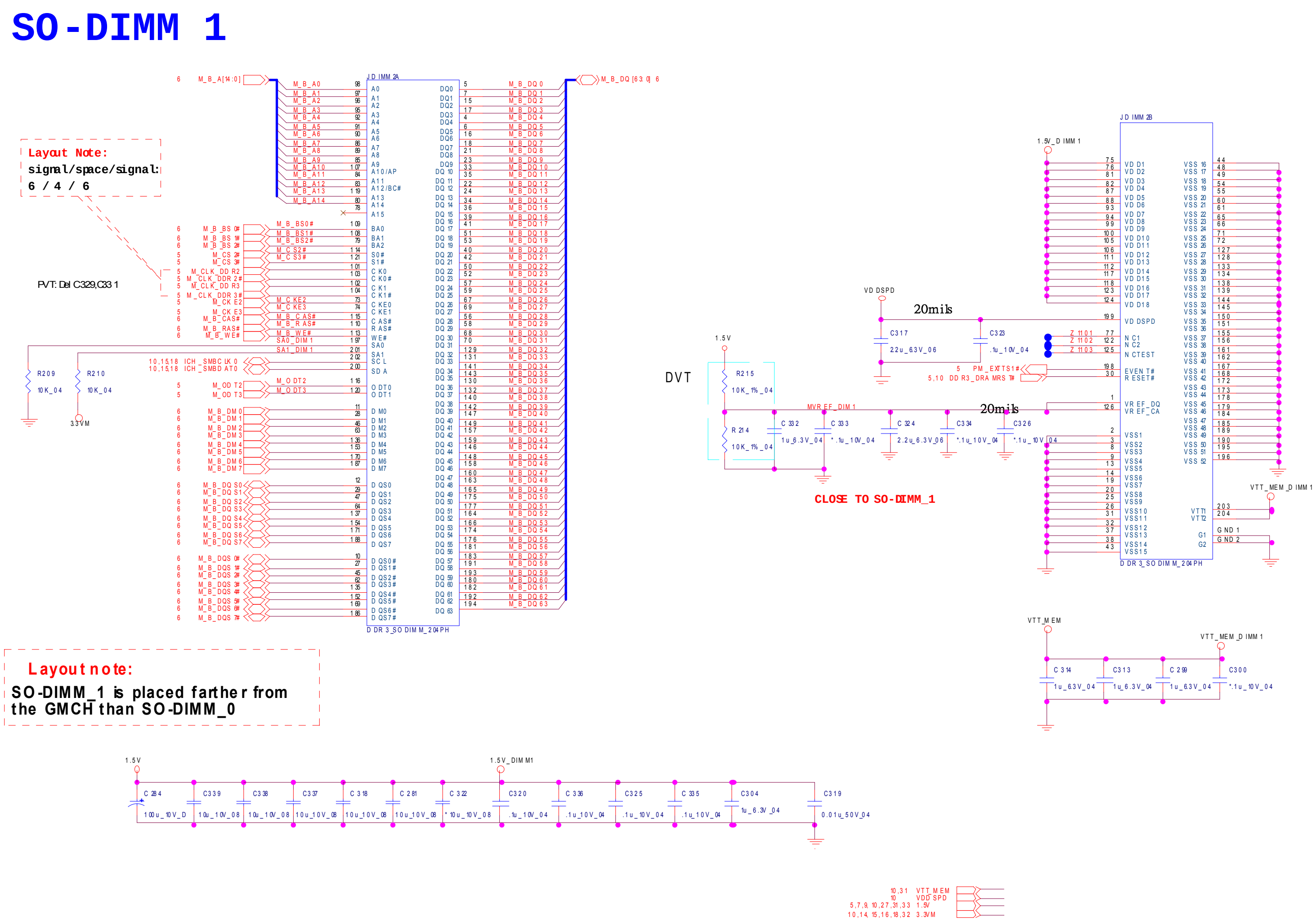
DDR3 SO-DIMM 1

SO-DIMM 0



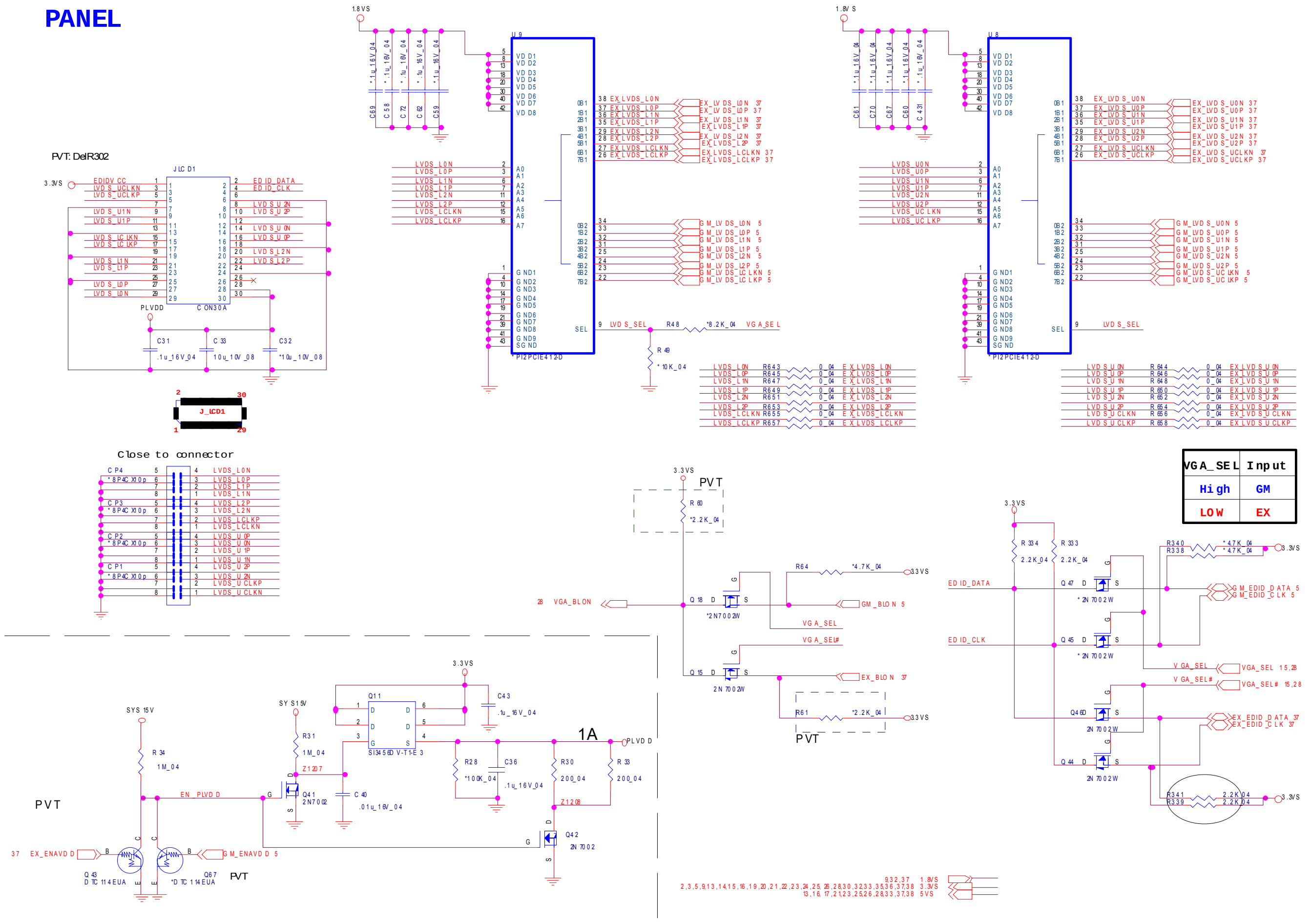
Sheet 10 of 42
DDR3 SO-DIMM 1

DDR3 SO-DIMM 2



Sheet 11 of 42
DDR3 SO-DIMM 2

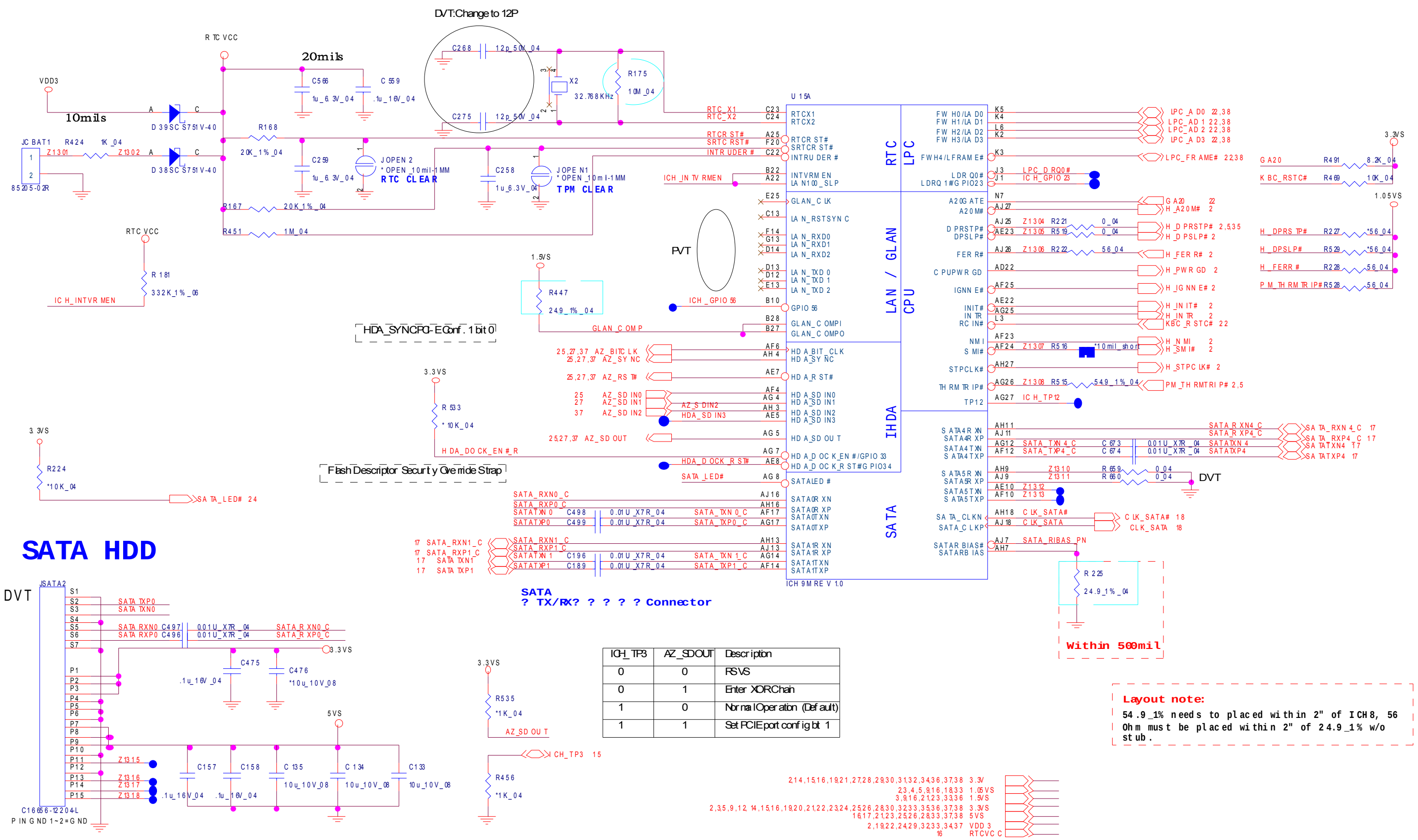
LCD



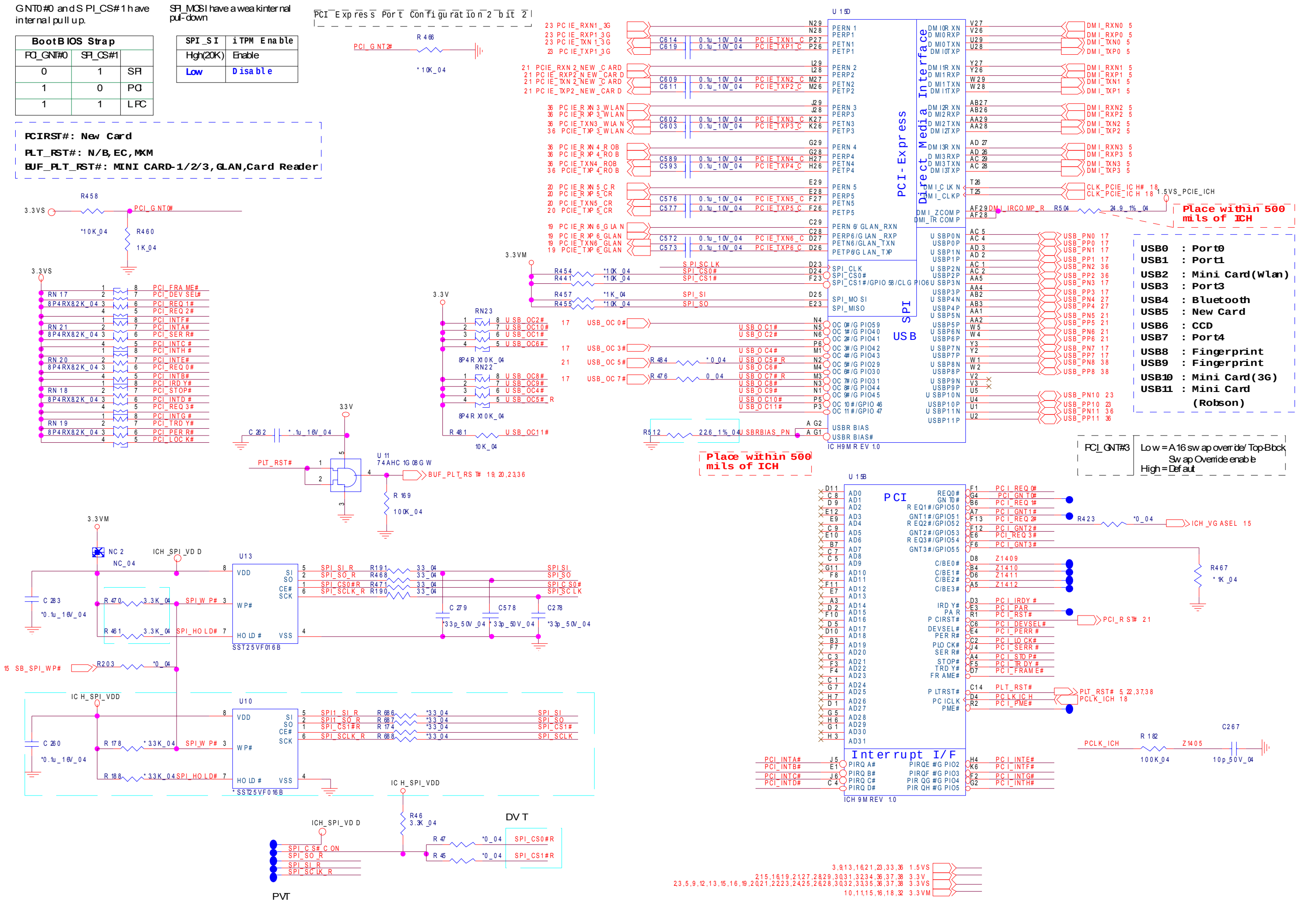
Sheet 12 of 42
LCD

ICH9-M 1/4, SATA

Sheet 13 of 42
ICH9-M 1/4, SATA



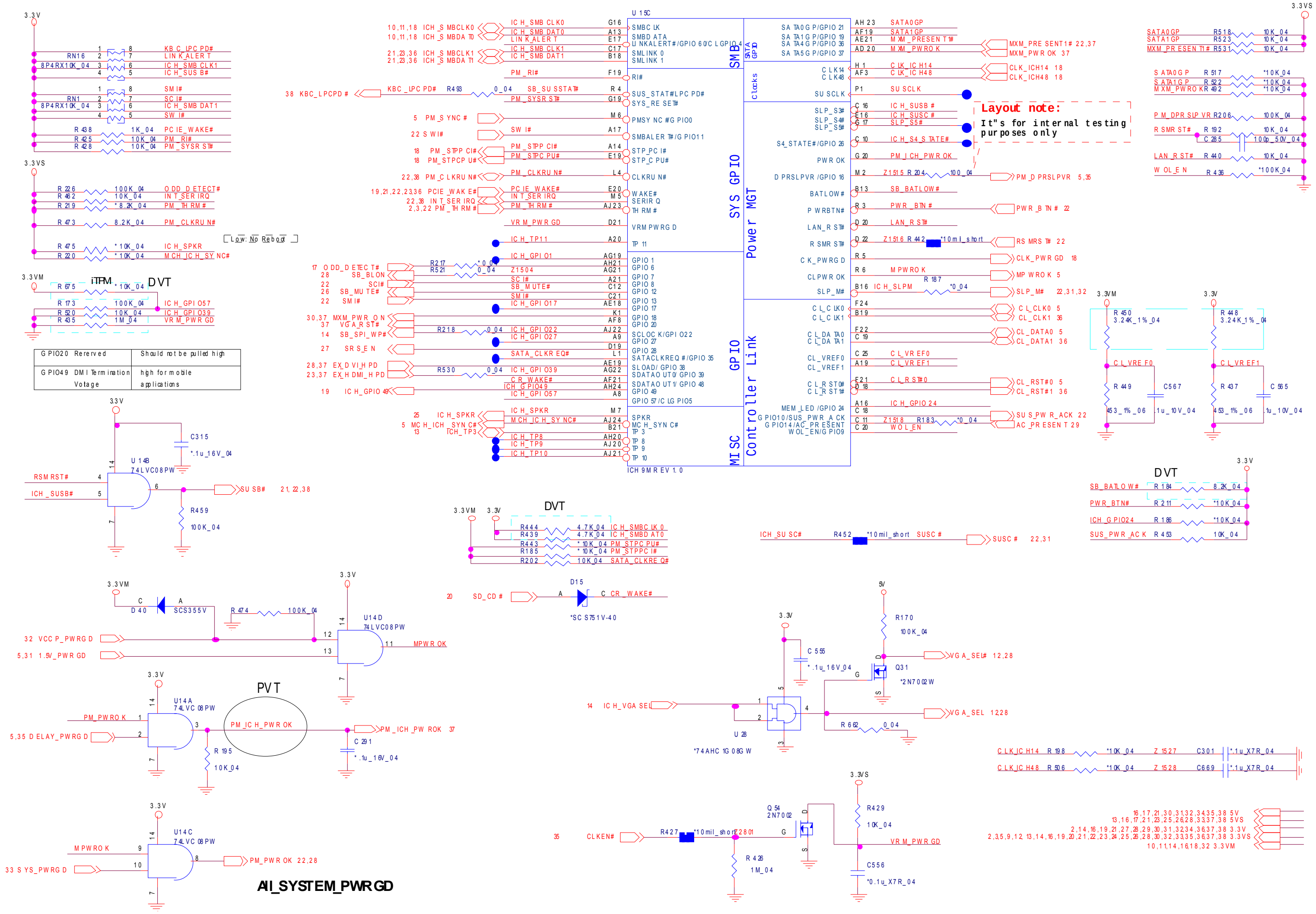
ICH9-M 2/4, PCI, USB



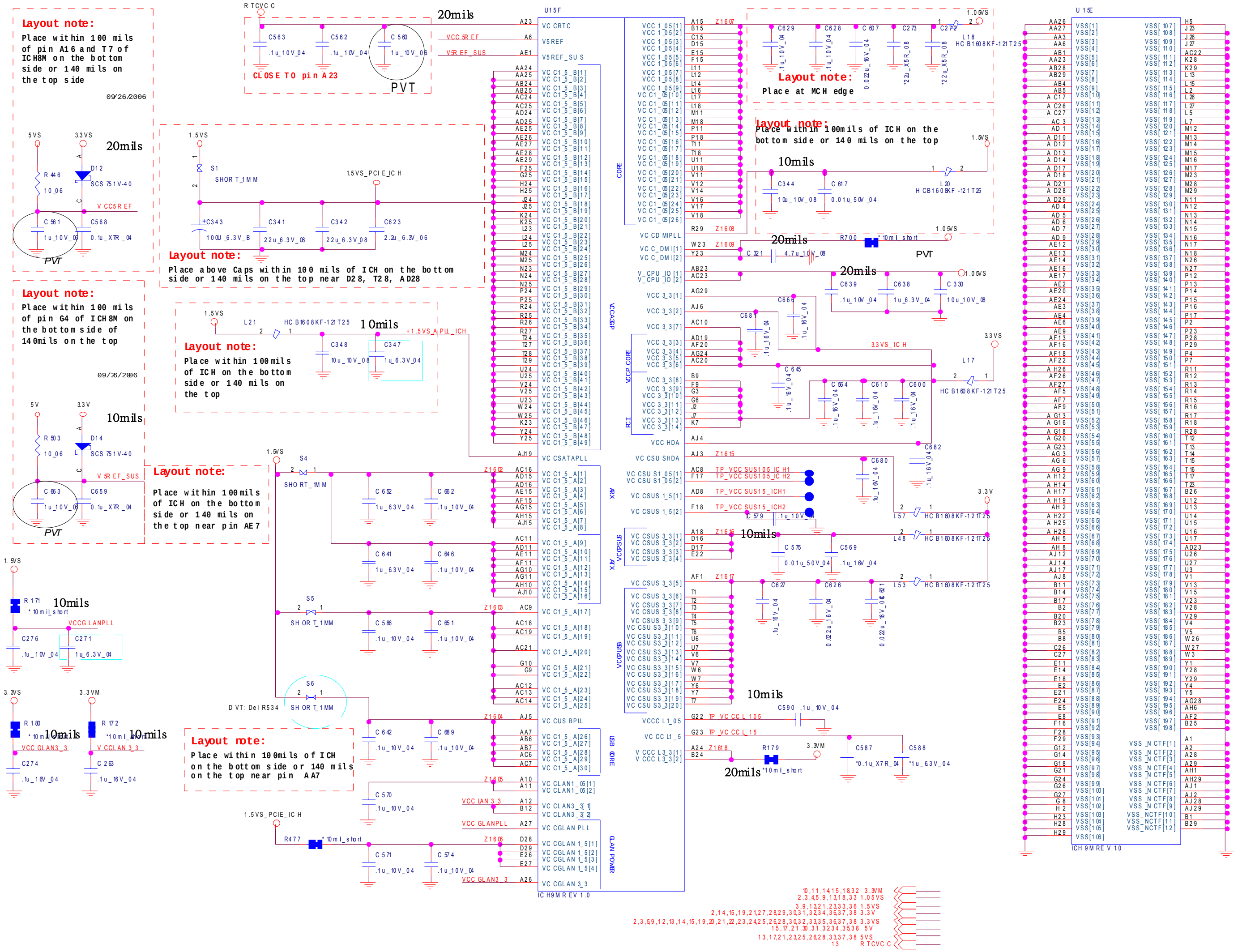
Sheet 14 of 42
ICH9-M 2/4, PCI, USB

ICH9-M 3/4

Sheet 15 of 42
ICH9-M 3/4



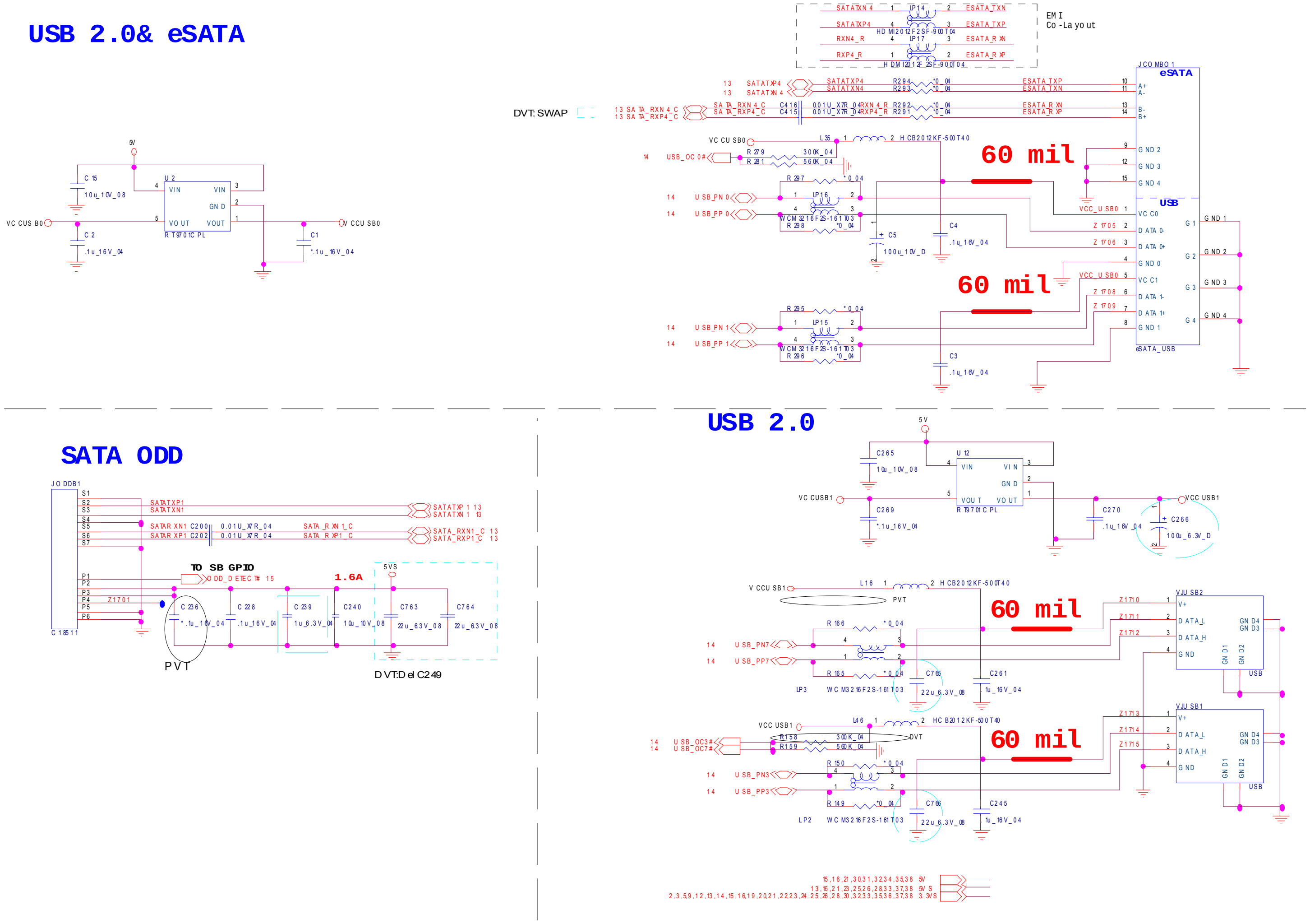
ICH9-M 4/4, Power



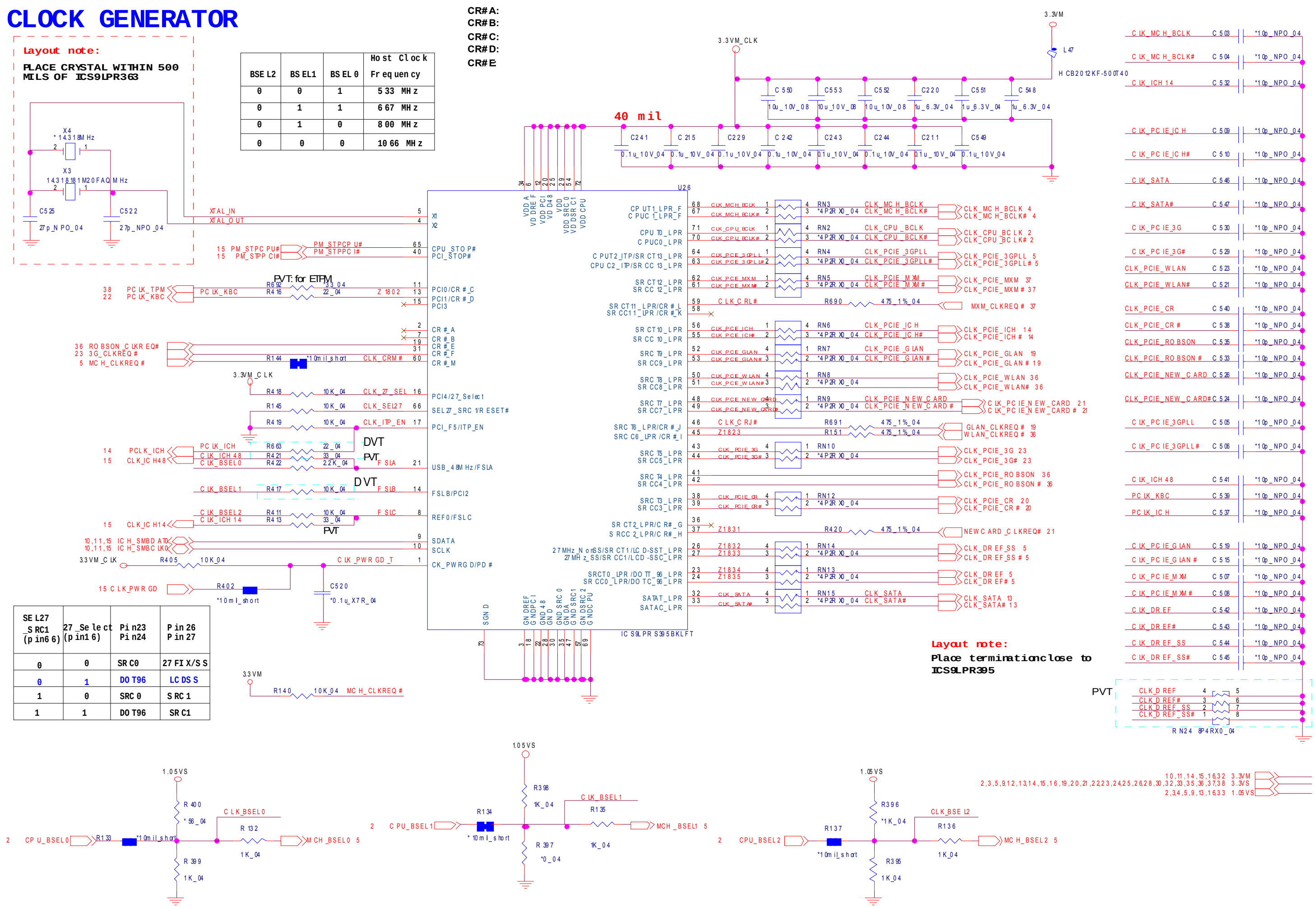
Sheet 16 of 42
ICH9-M 4/4, Power

ODD, USB2.0 & eSATA

Sheet 17 of 42
ODD, USB2.0 & eSATA



Clock Generator

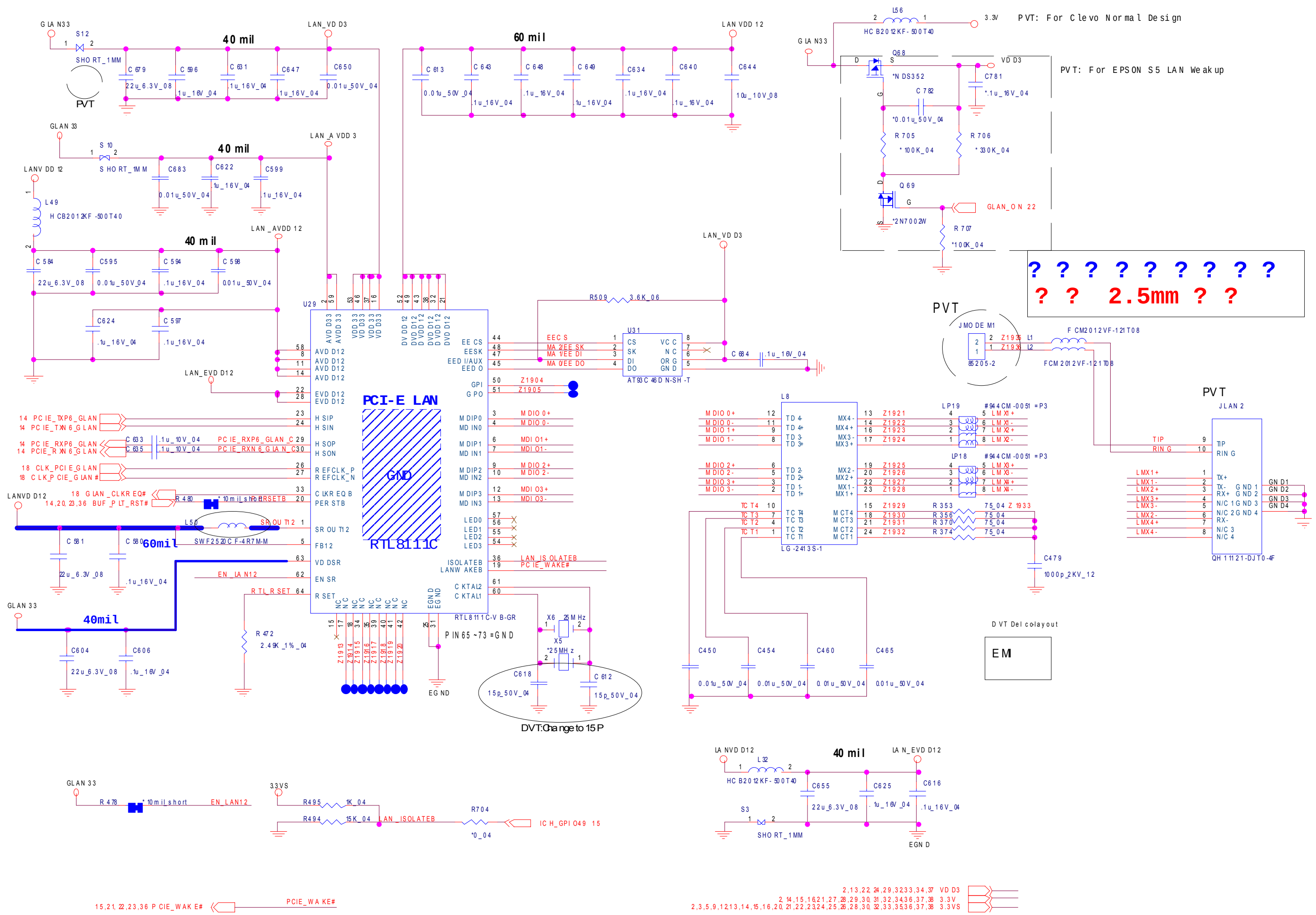


Sheet 18 of 42
Clock Generator

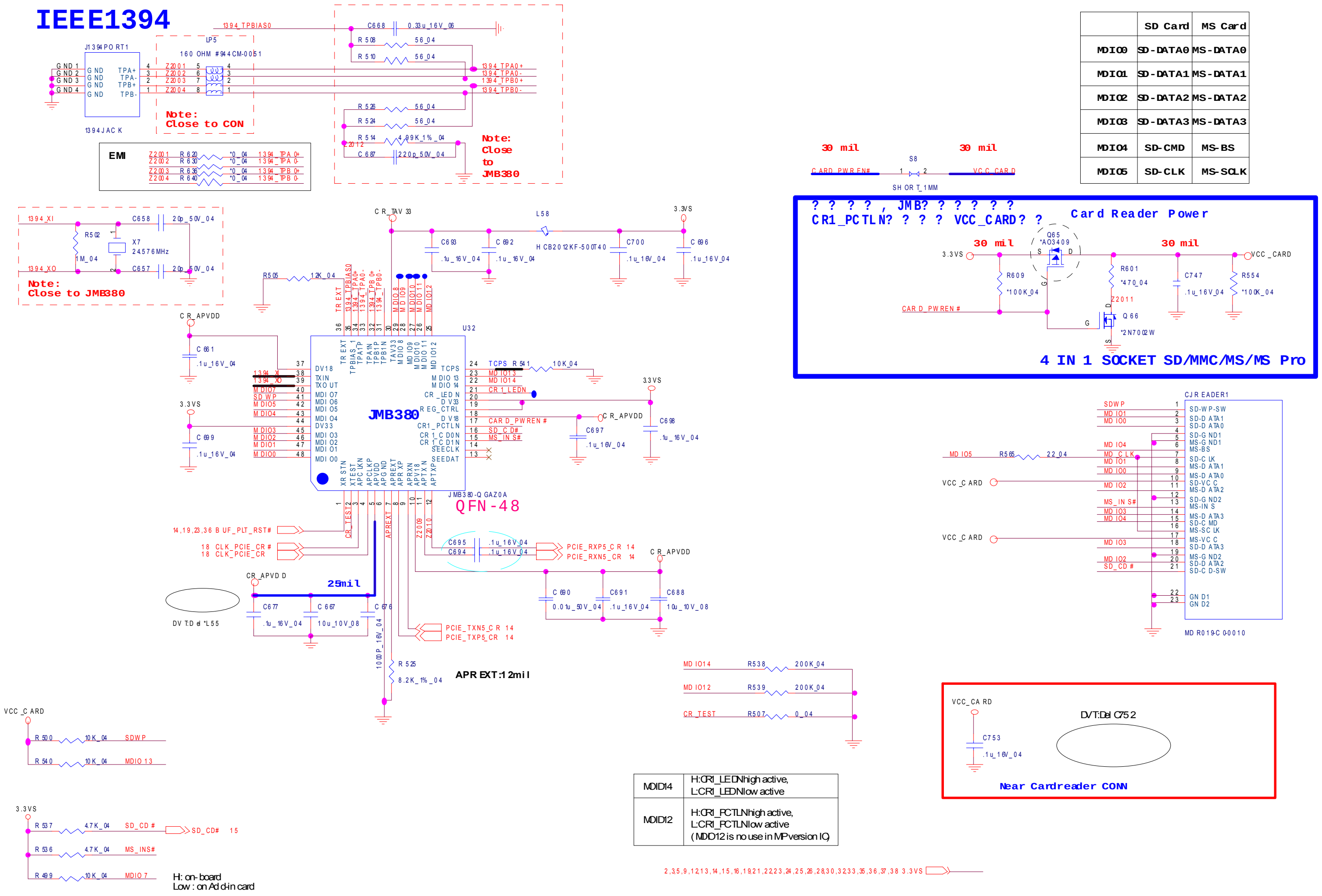
B.Schematic Diagrams

PCI-E LAN RTL8111C, RJ45RJ11

Sheet 19 of 42
PCI-E LAN
RTL8111C,
RJ45RJ11



Card Reader & 1394 JMB380



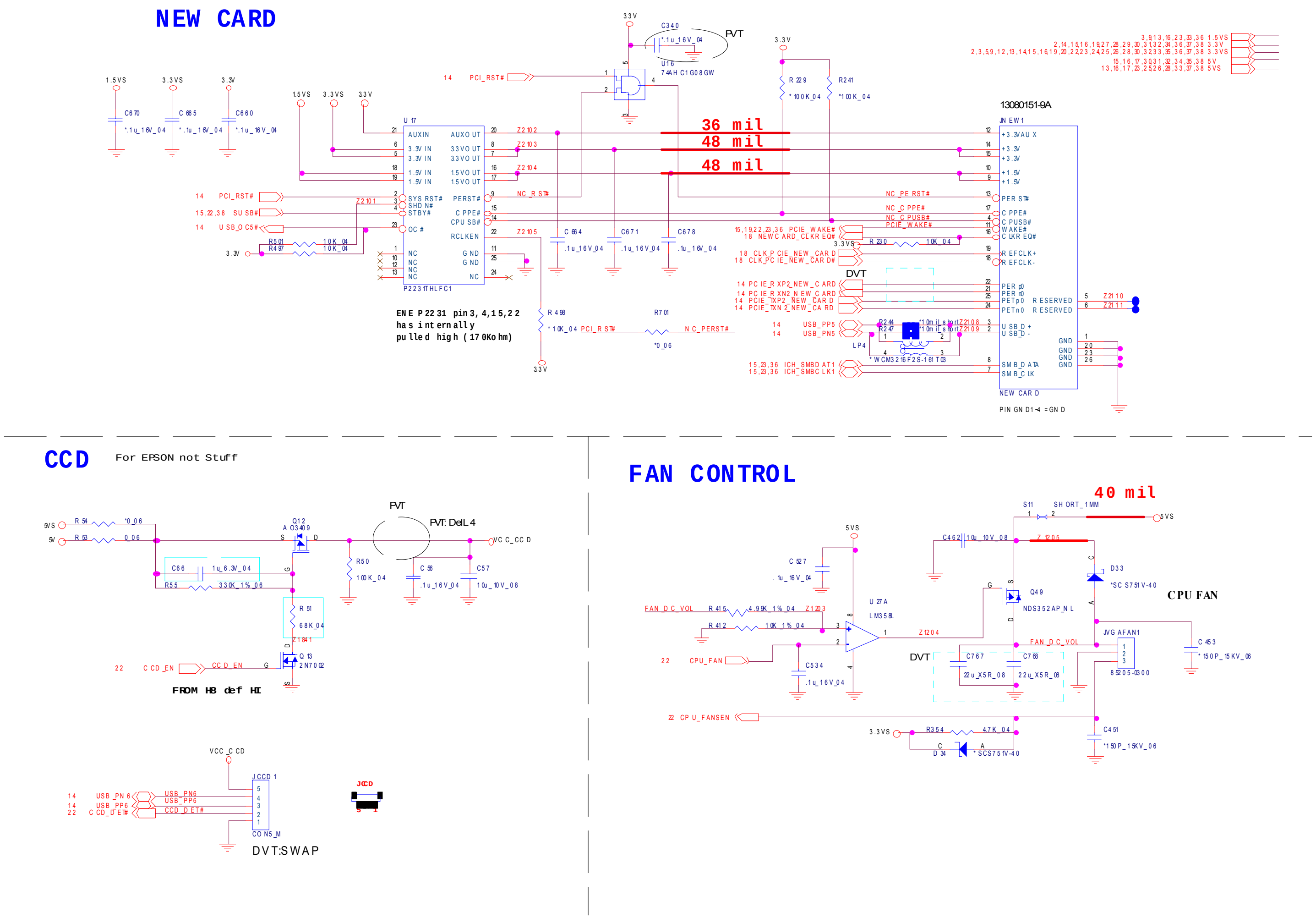
	SD Card	MS Card
MDIO0	SD-DATA0	MS-DATA0
MDIO1	SD-DATA1	MS-DATA1
MDIO2	SD-DATA2	MS-DATA2
MDIO3	SD-DATA3	MS-DATA3
MDIO4	SD-CMD	MS-BS
MDIO5	SD-CLK	MS-SCLK

MDIO14	H:CR1_LEDN high active, L:CR1_LEDN low active
MDIO12	H:CR1_PCTLN high active, L:CR1_PCTLN low active (MDIO12 is no use in MP version IC)

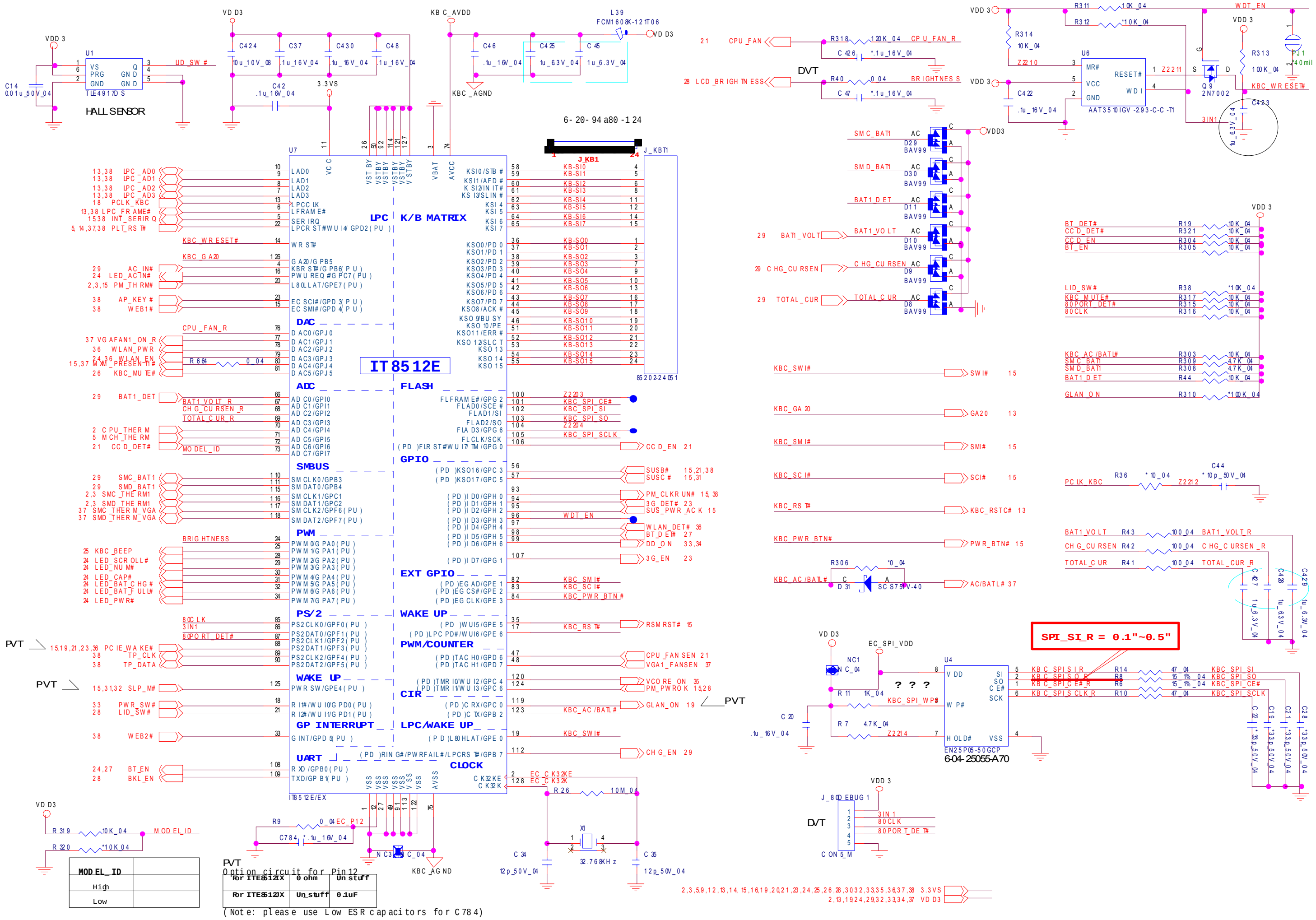
Sheet 20 of 42
Card Reader &
1394 JMB380

New Card, CCD, Fan

Sheet 21 of 42
New Card, CCD, Fan



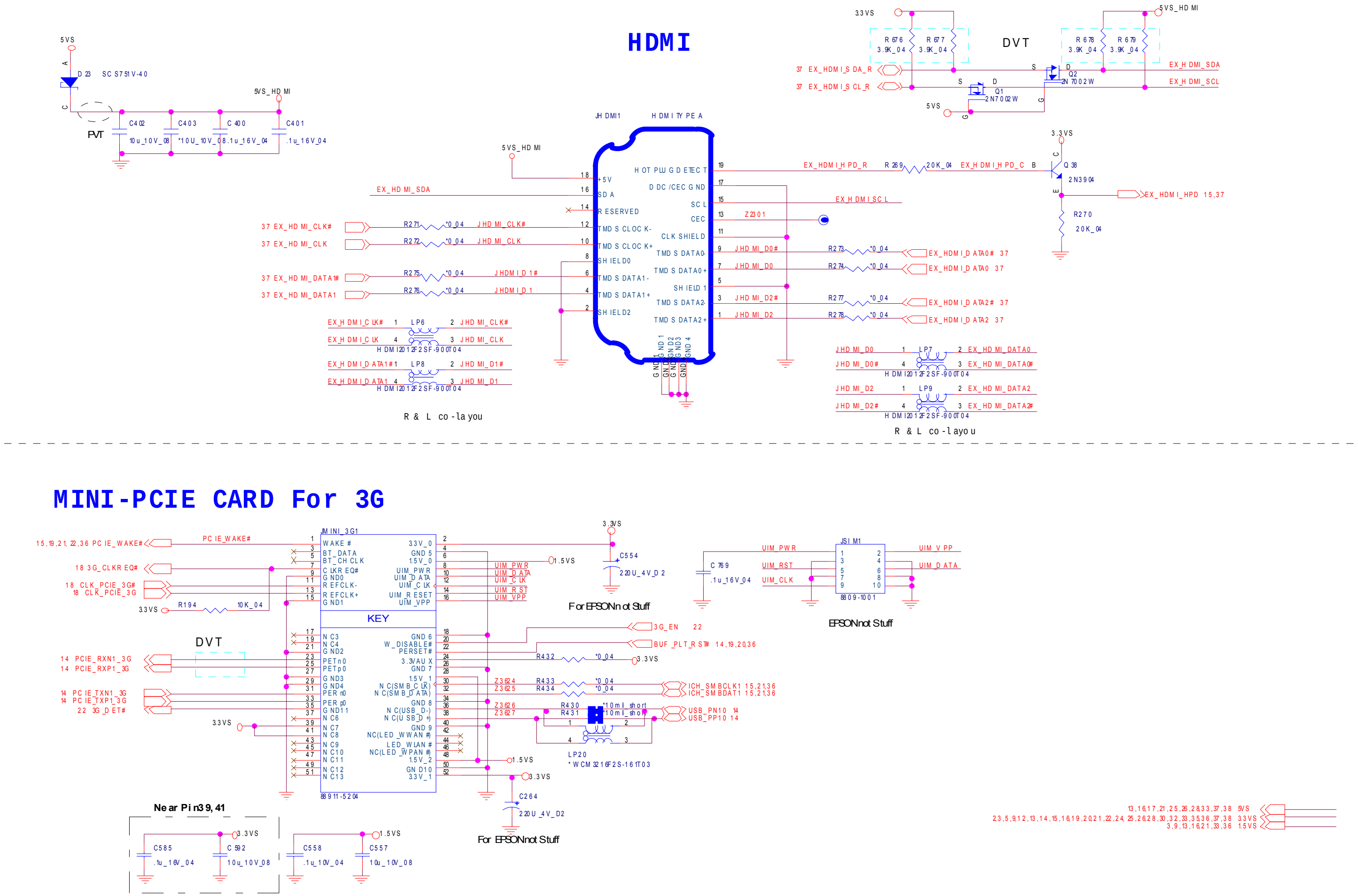
KBC-ITE IT8512



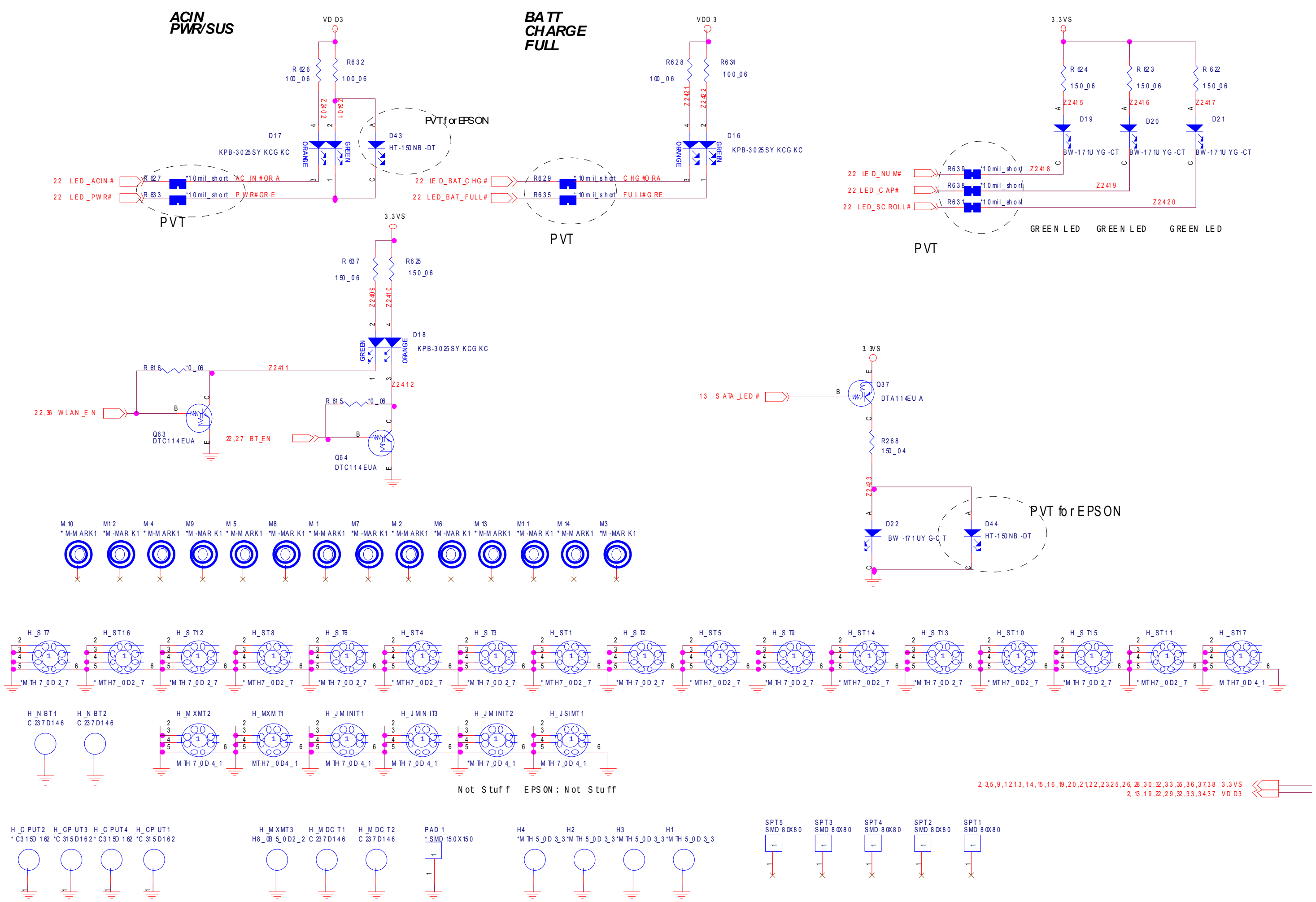
Sheet 22 of 42
KBC-ITE IT8512

HDMI, 3G

Sheet 23 of 42
HDMI, 3G



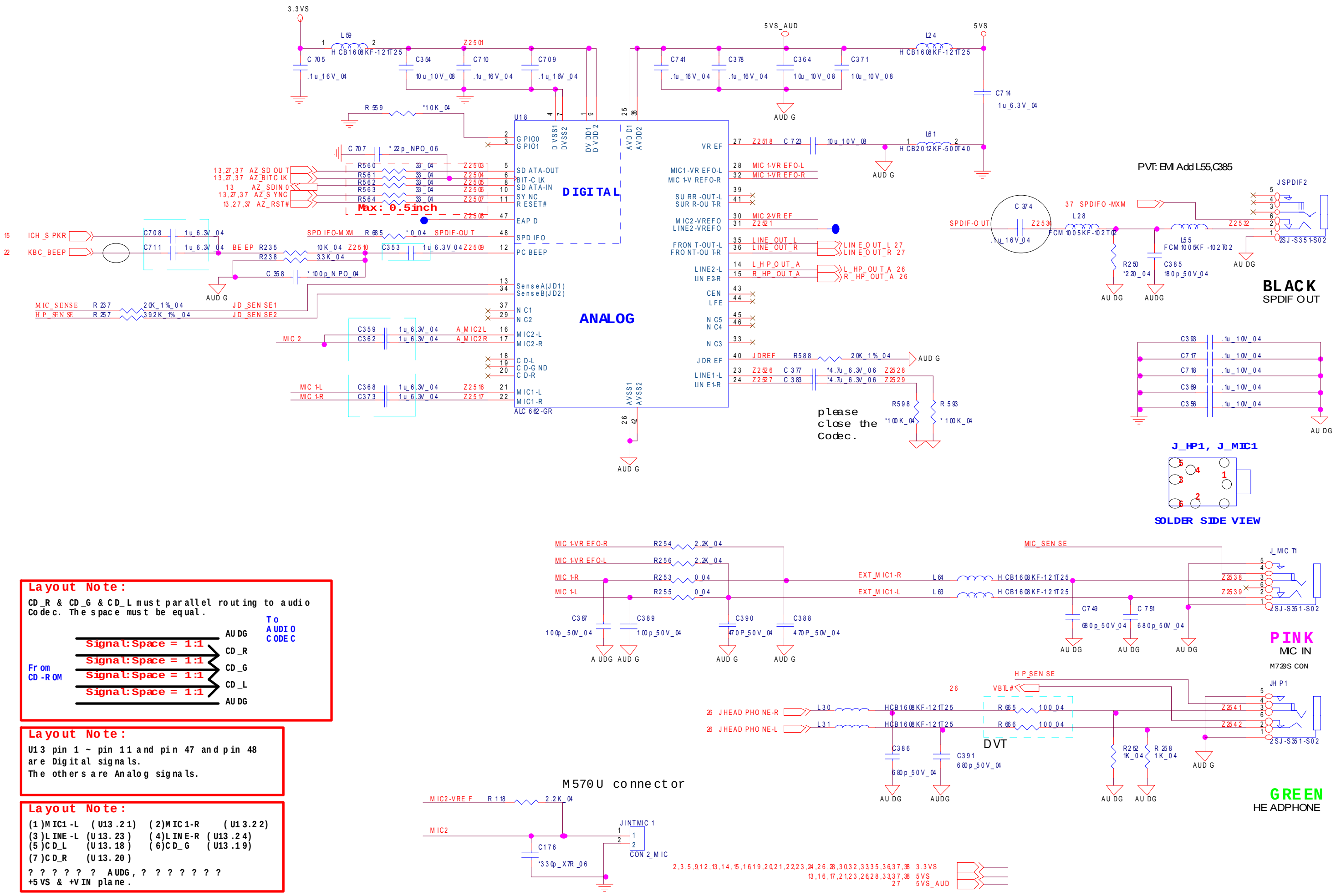
LED, Screw Hole



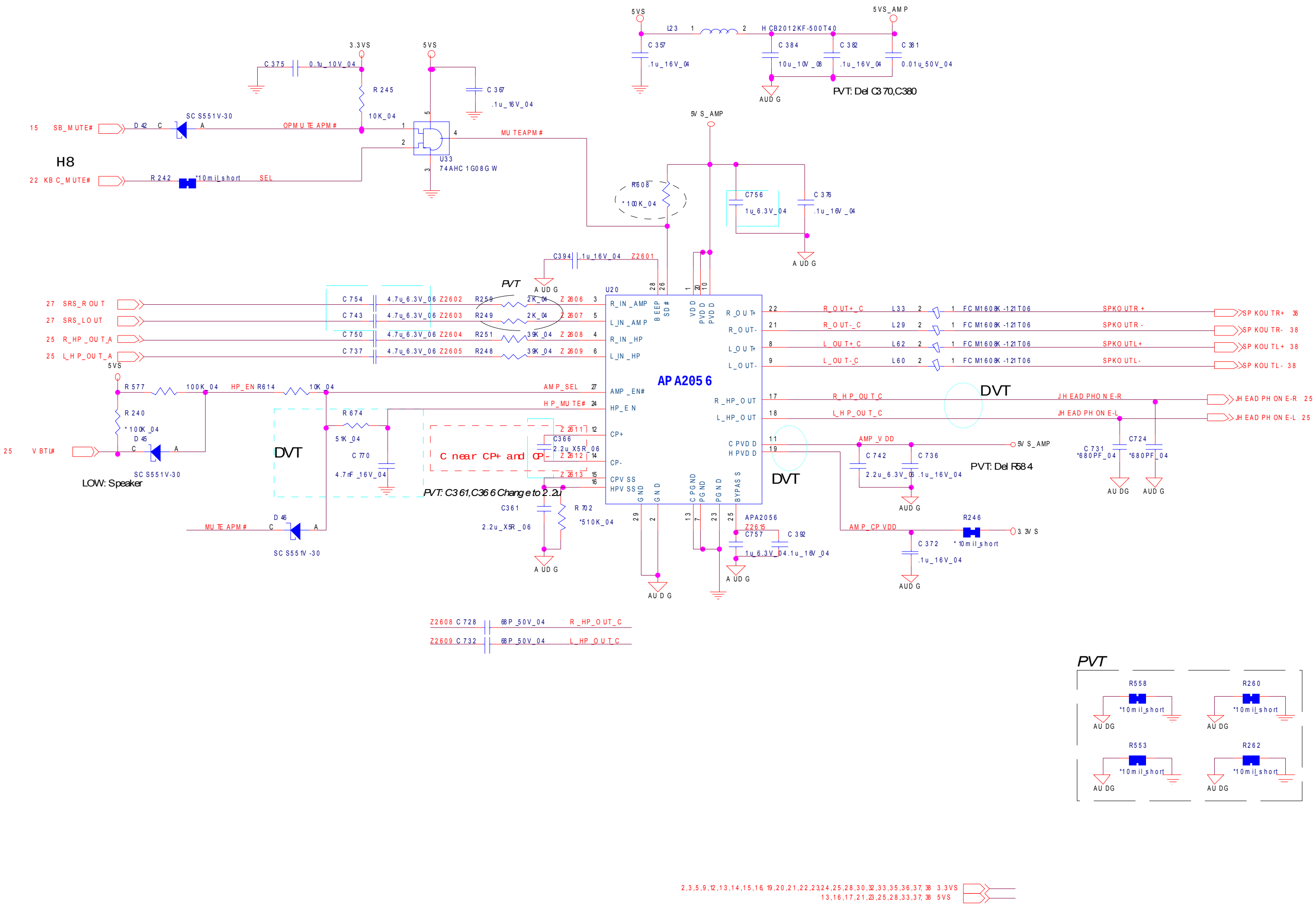
Sheet 24 of 42
LED, Screw Hole

Azalia CODEC ALC662

Sheet 25 of 42
Azalia CODEC
ALC662



Audio AMP

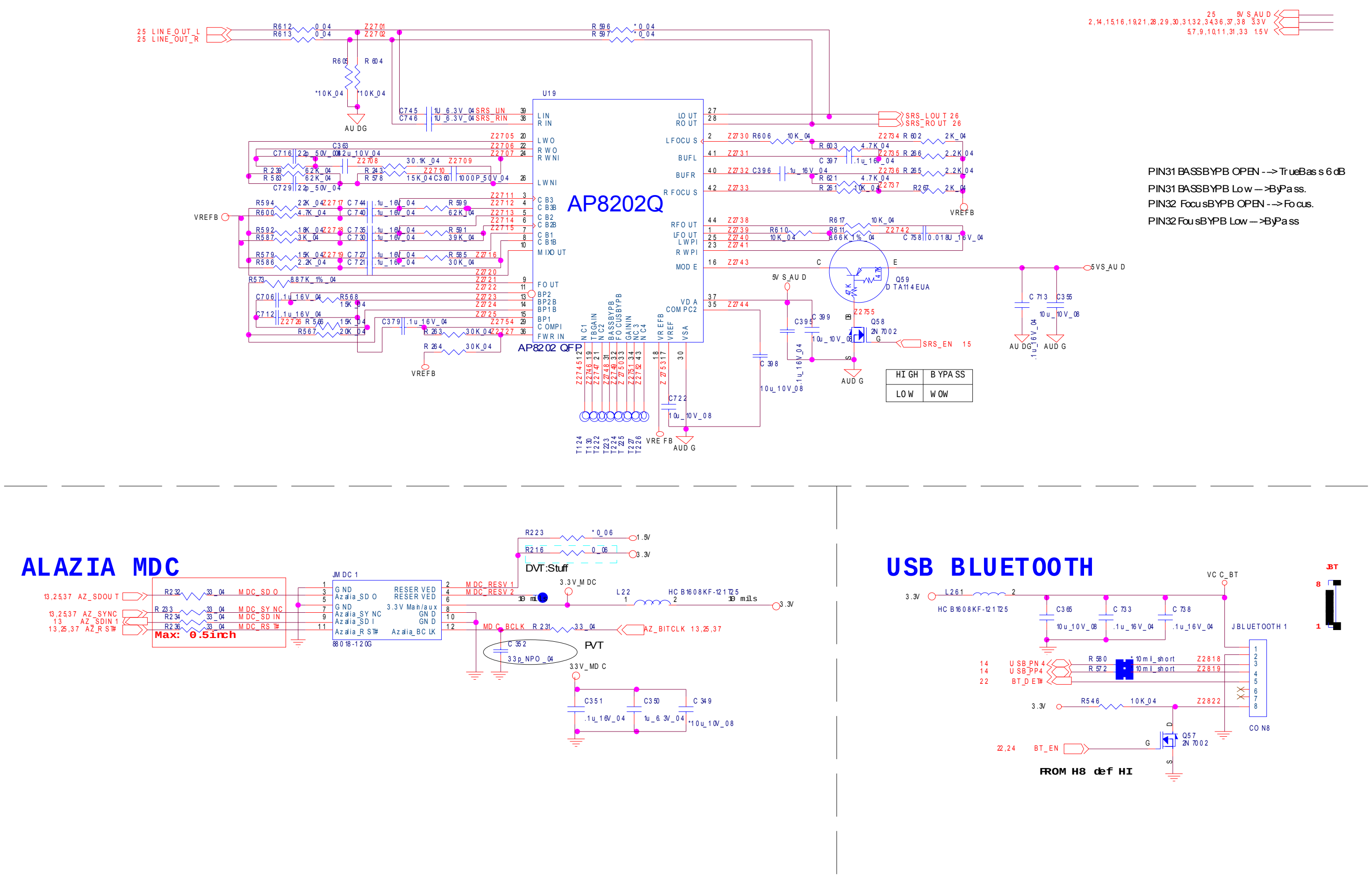


Sheet 26 of 42
Audio AMP

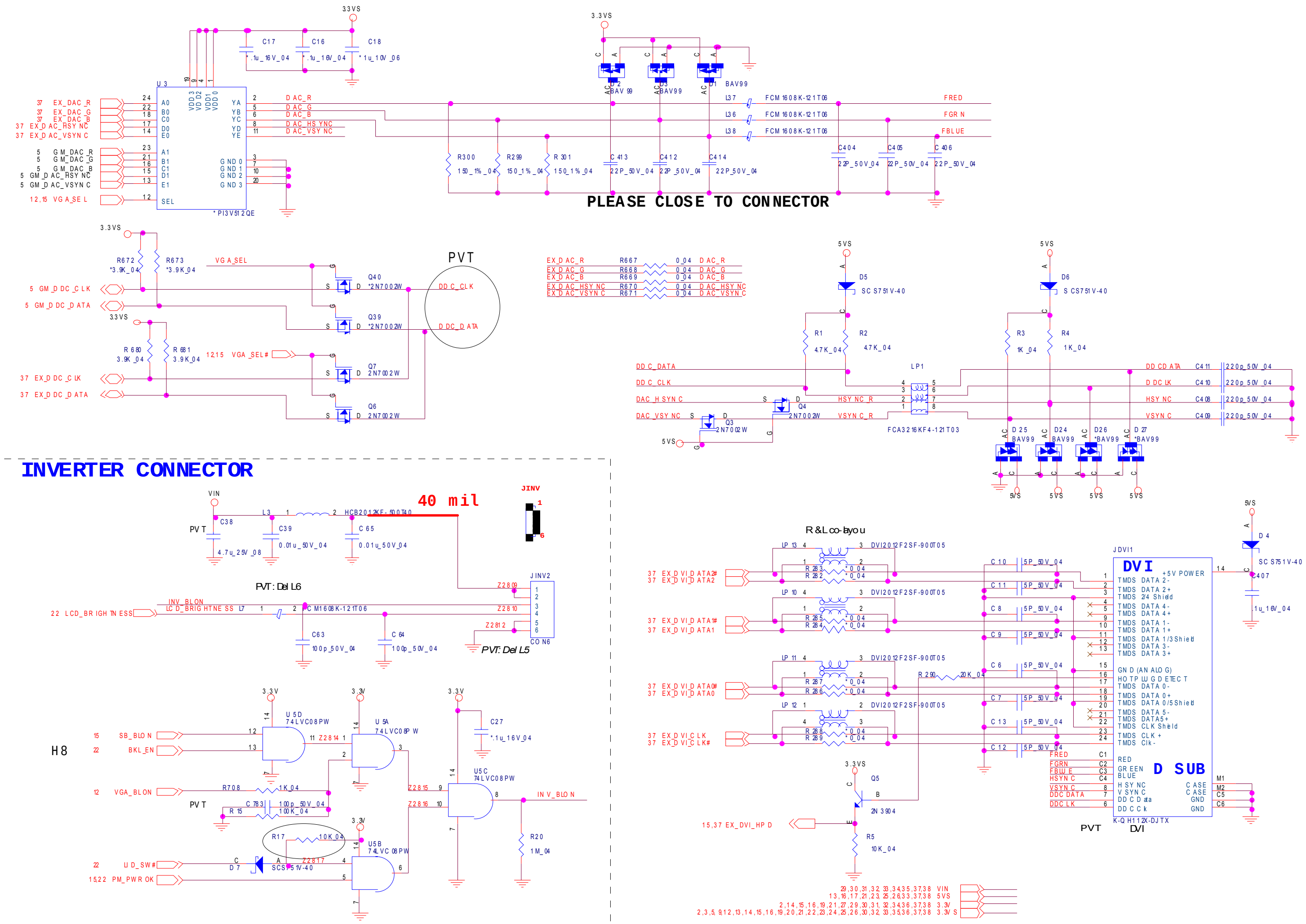
SRS, MDC, BT

Sheet 27 of 42
SRS, MDC, BT

AUDIO PROCESSOR PRE-AMP



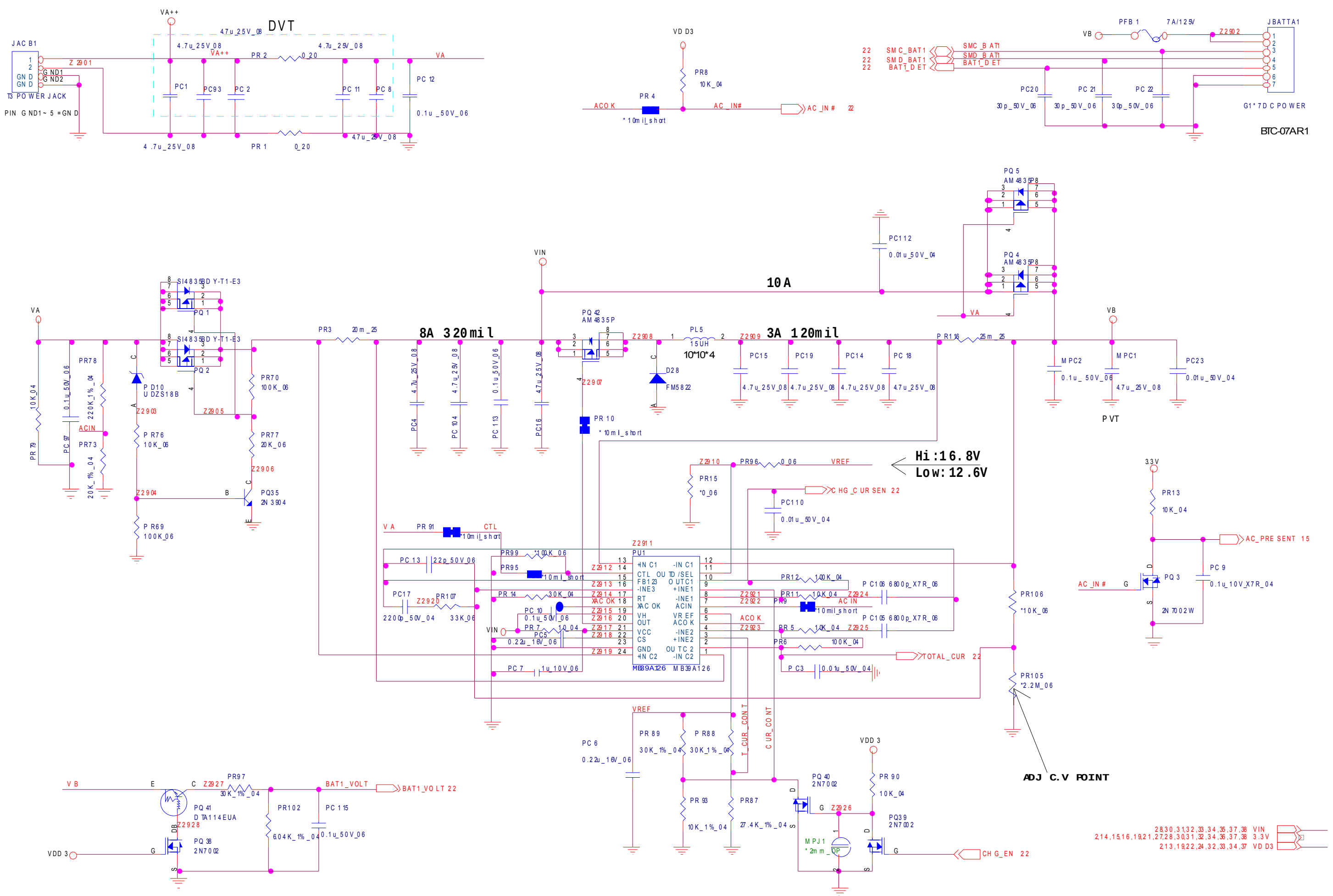
DVI, INV



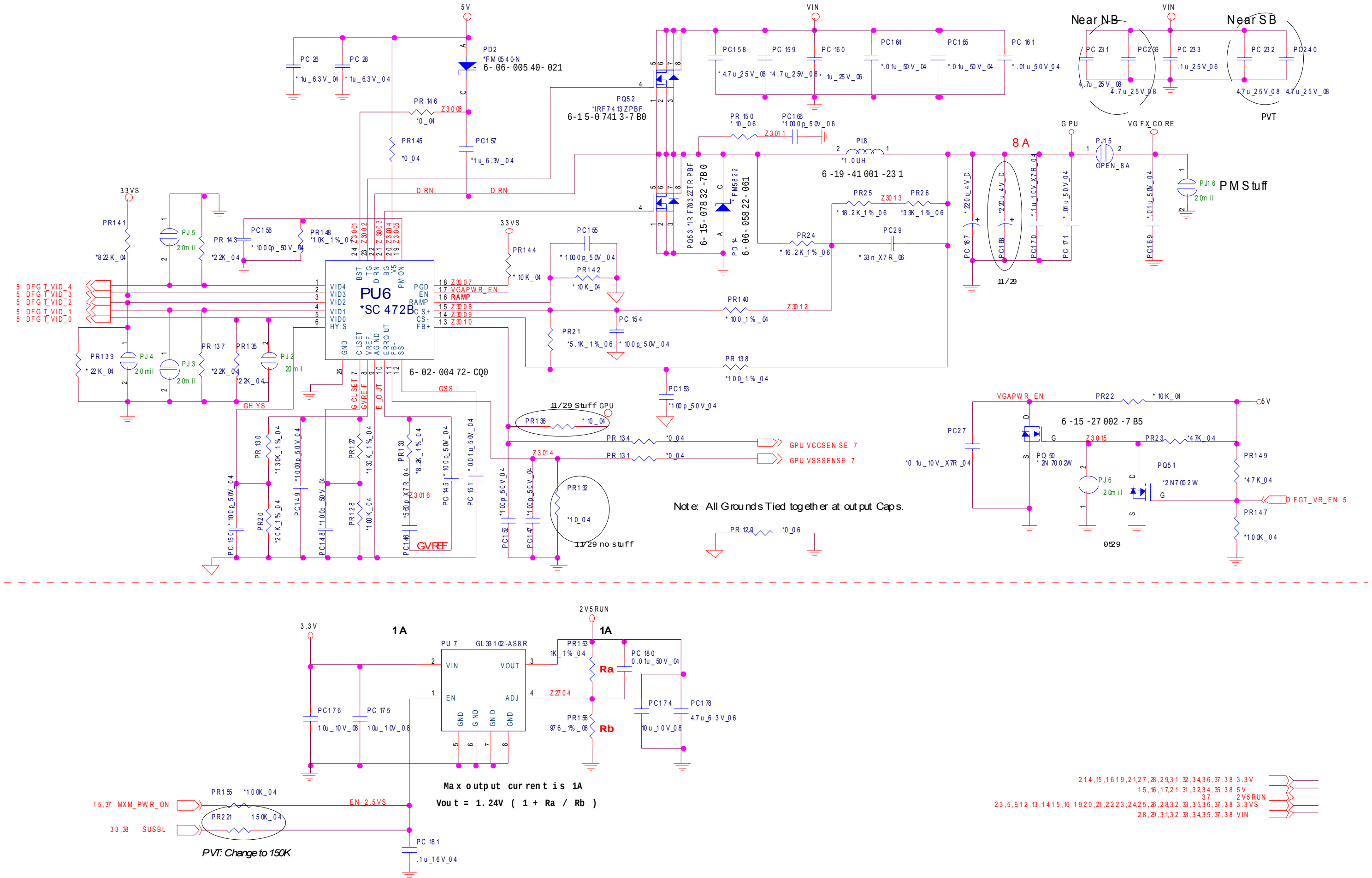
Sheet 28 of 42
DVI, INV

Power Charger, DC-In

Sheet 29 of 42
Power Charger, DC-In



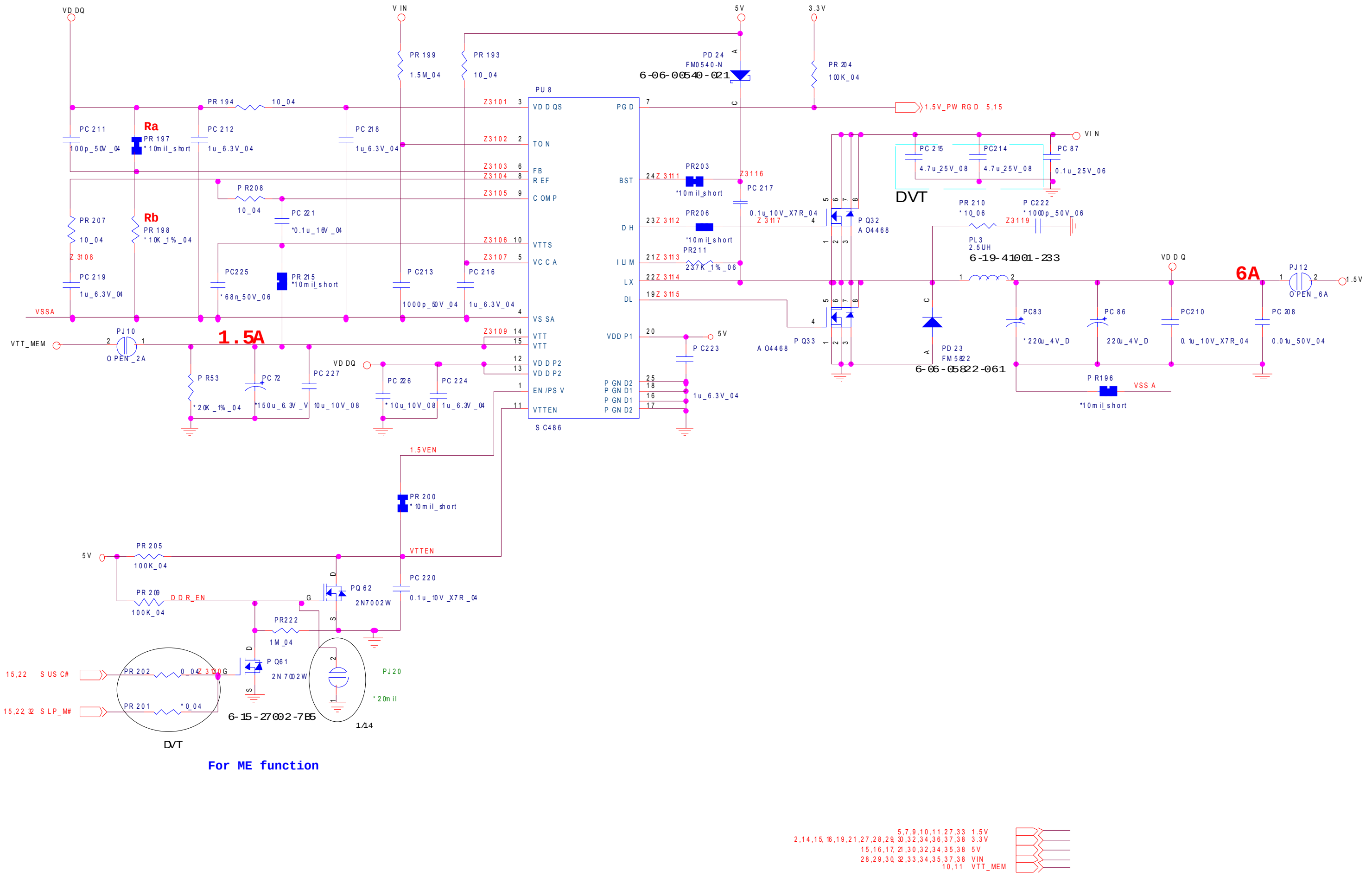
Power GPU



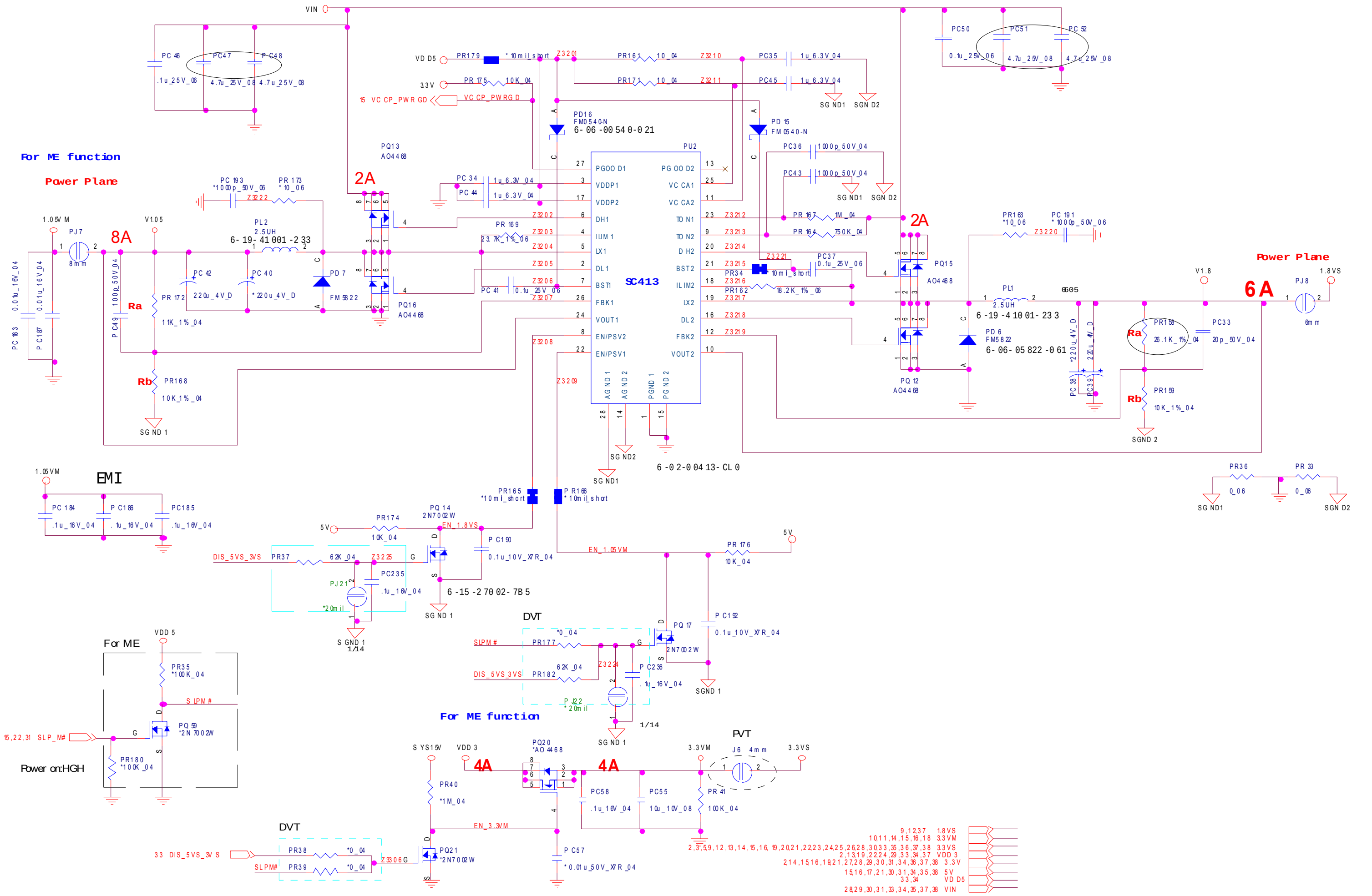
Sheet 30 of 42
Power GPU

Power 1.5V/0.75V

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Power 1.5V/0.75V



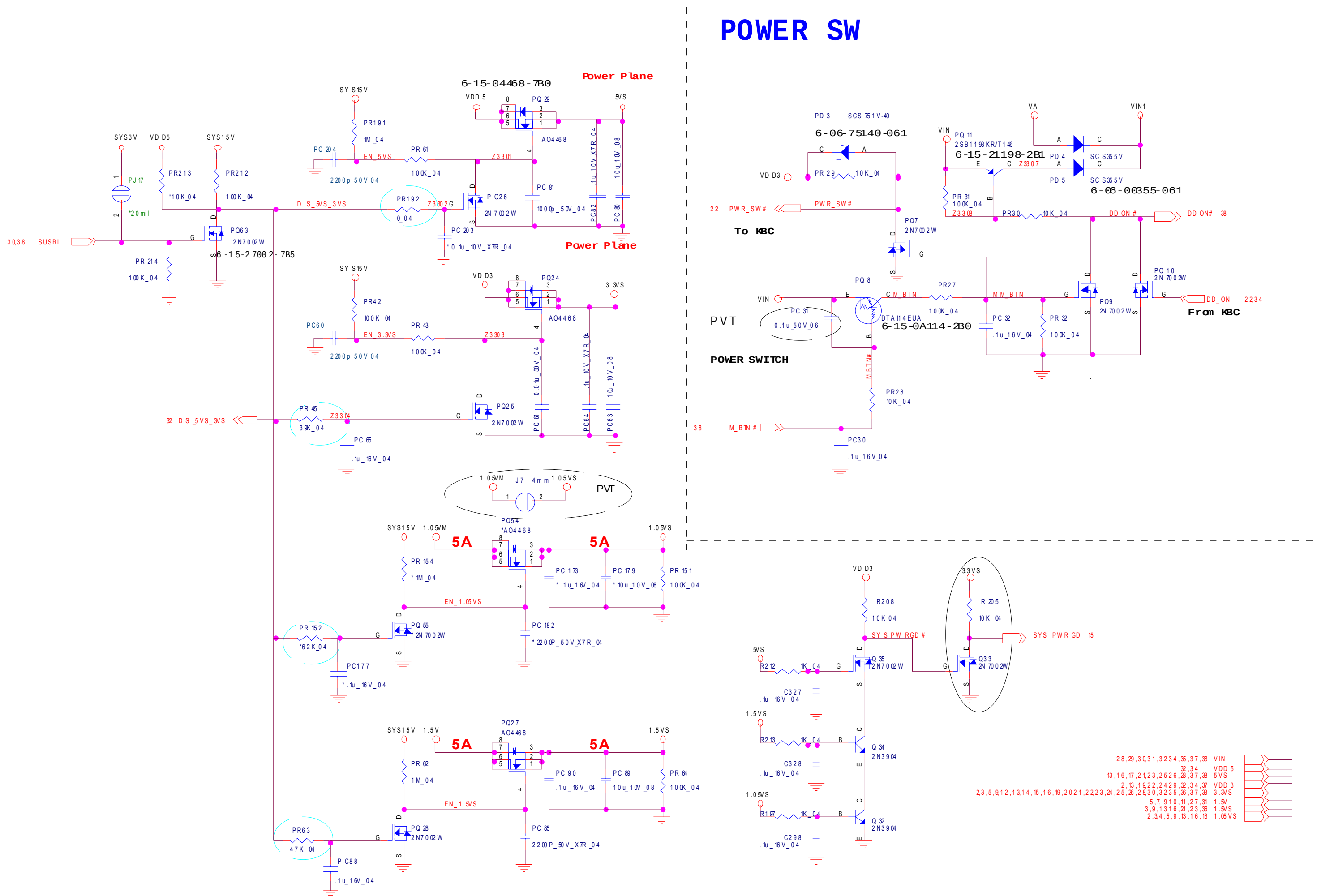
Power 3.3VM/1.8VS/1.05VM



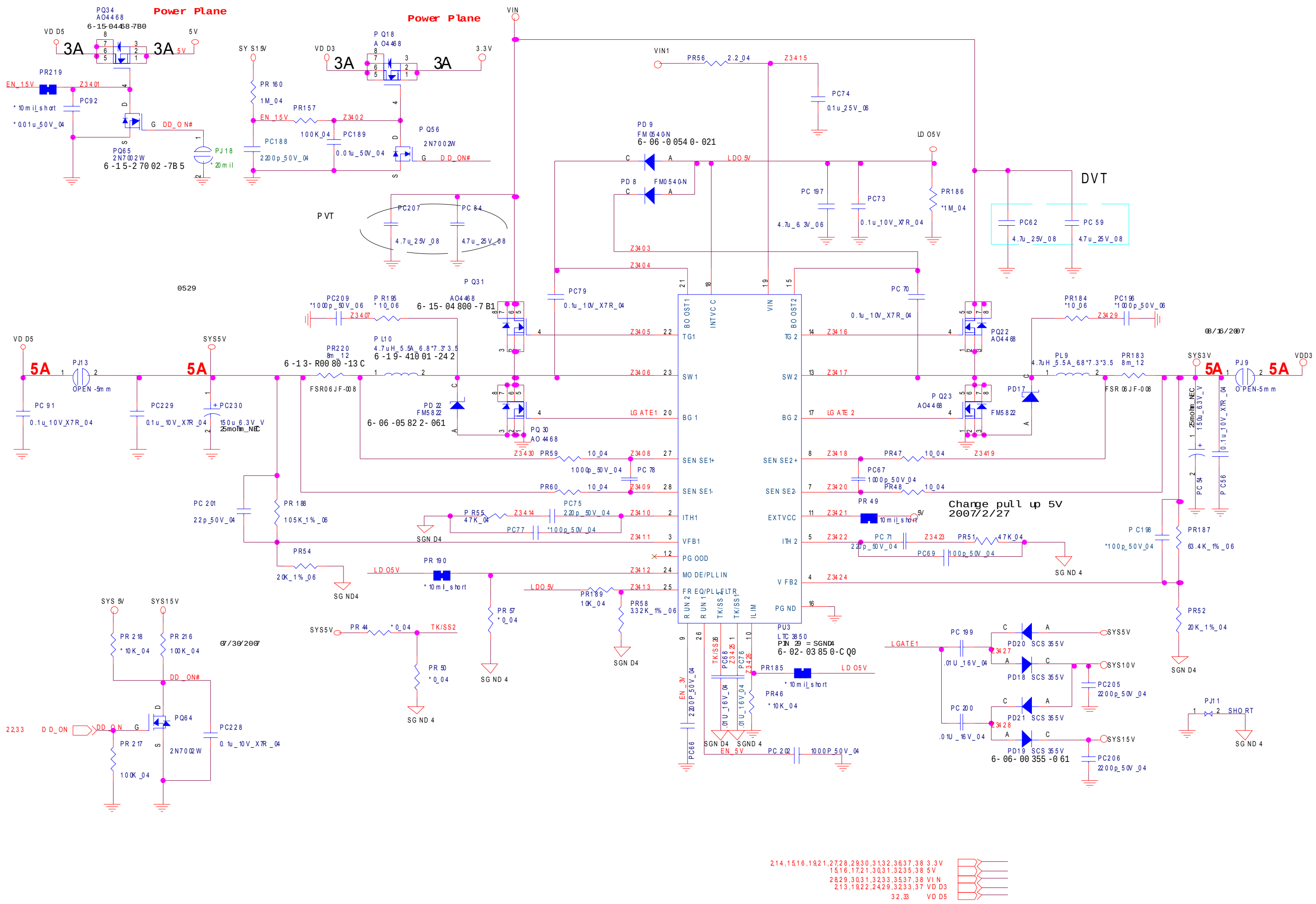
Sheet 32 of 42
Power 3.3VM/
1.8VS/1.05VM

Power 3VS/5VS / Power S/W

Sheet 33 of 42
Power 3VS/5VS/
Power S/W



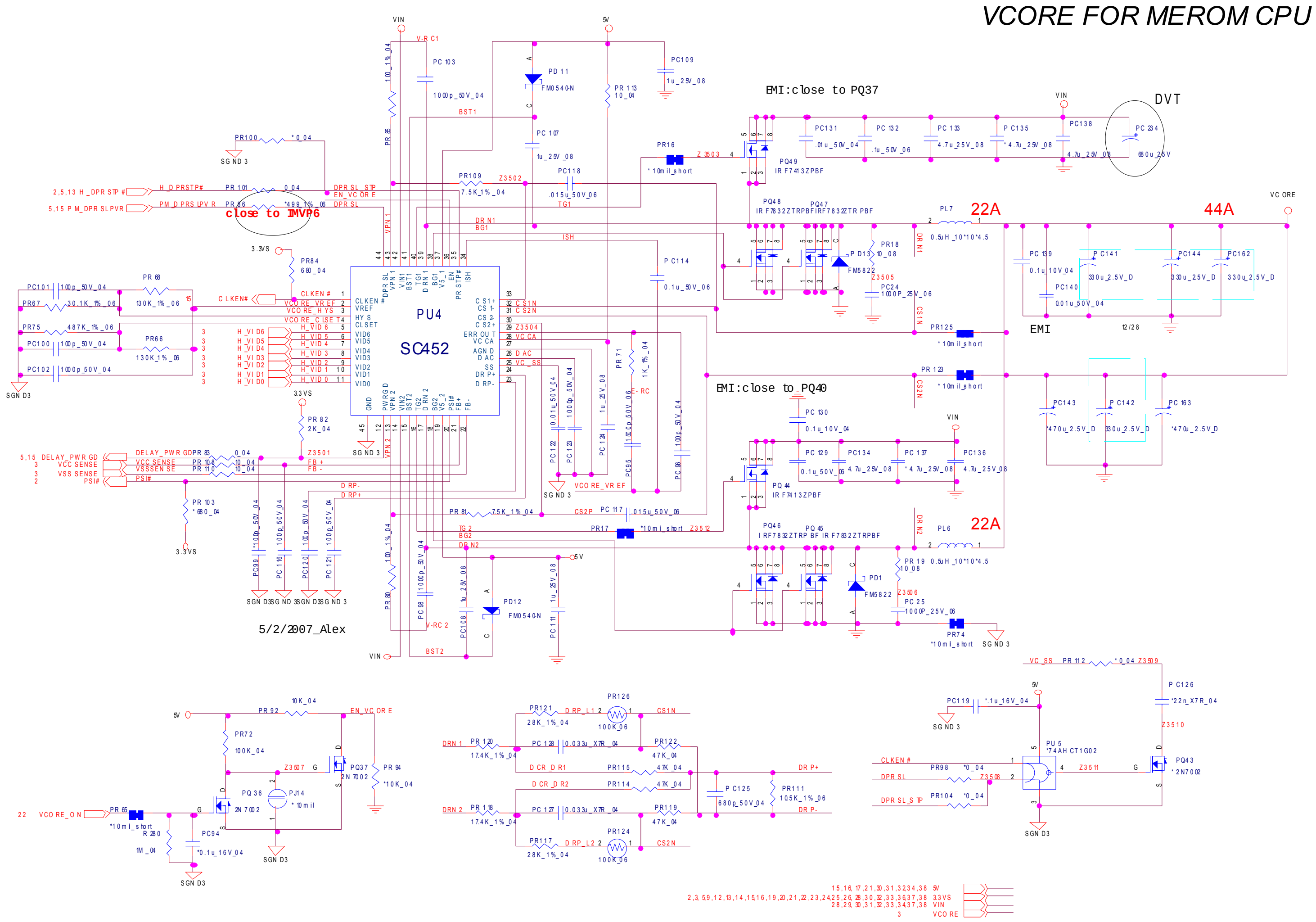
Power VDD3/VDD5/3.3V/5V



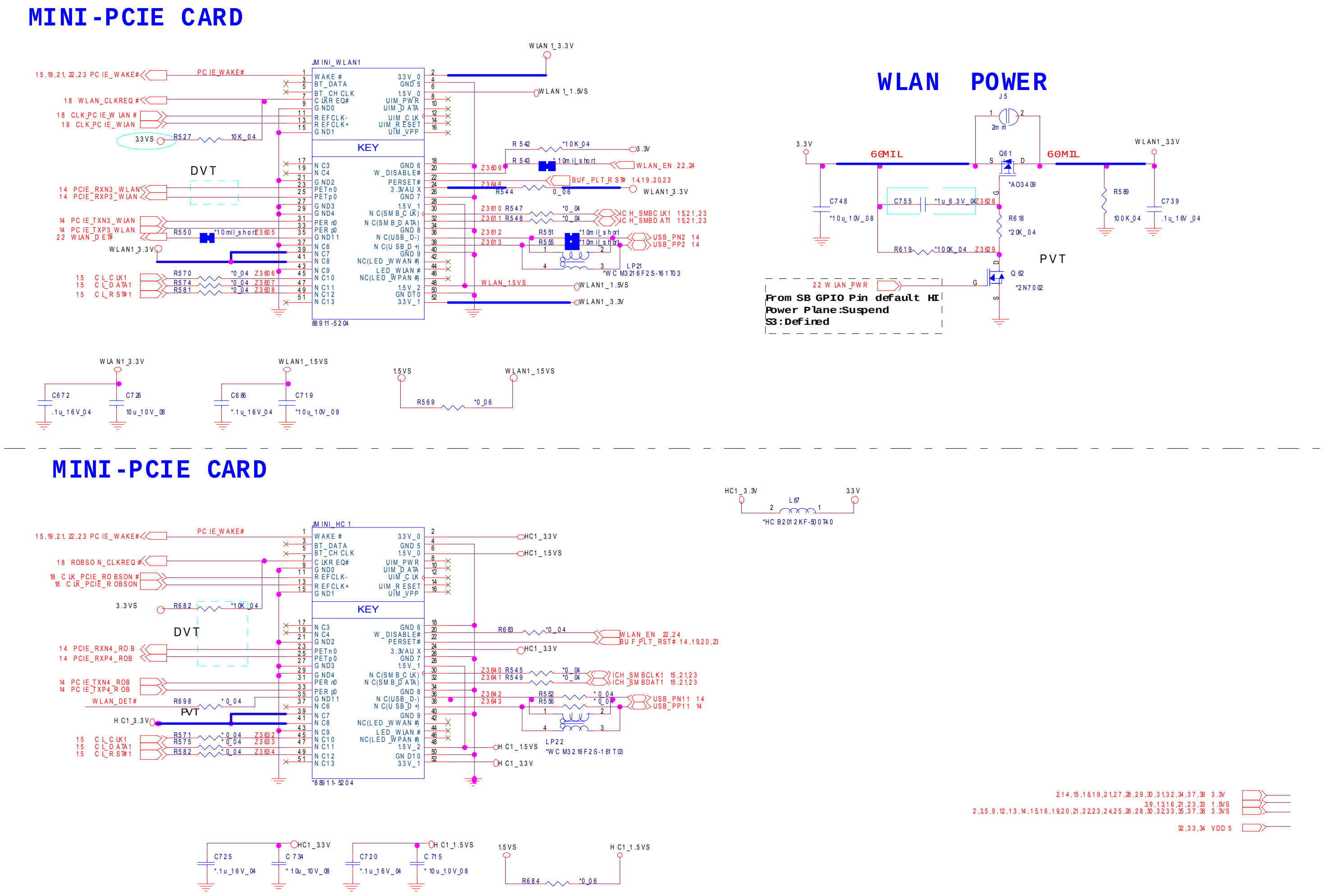
Sheet 34 of 42
Power VDD3/VDD5/
3.3V/5V

Power VCORE

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Power VCORE



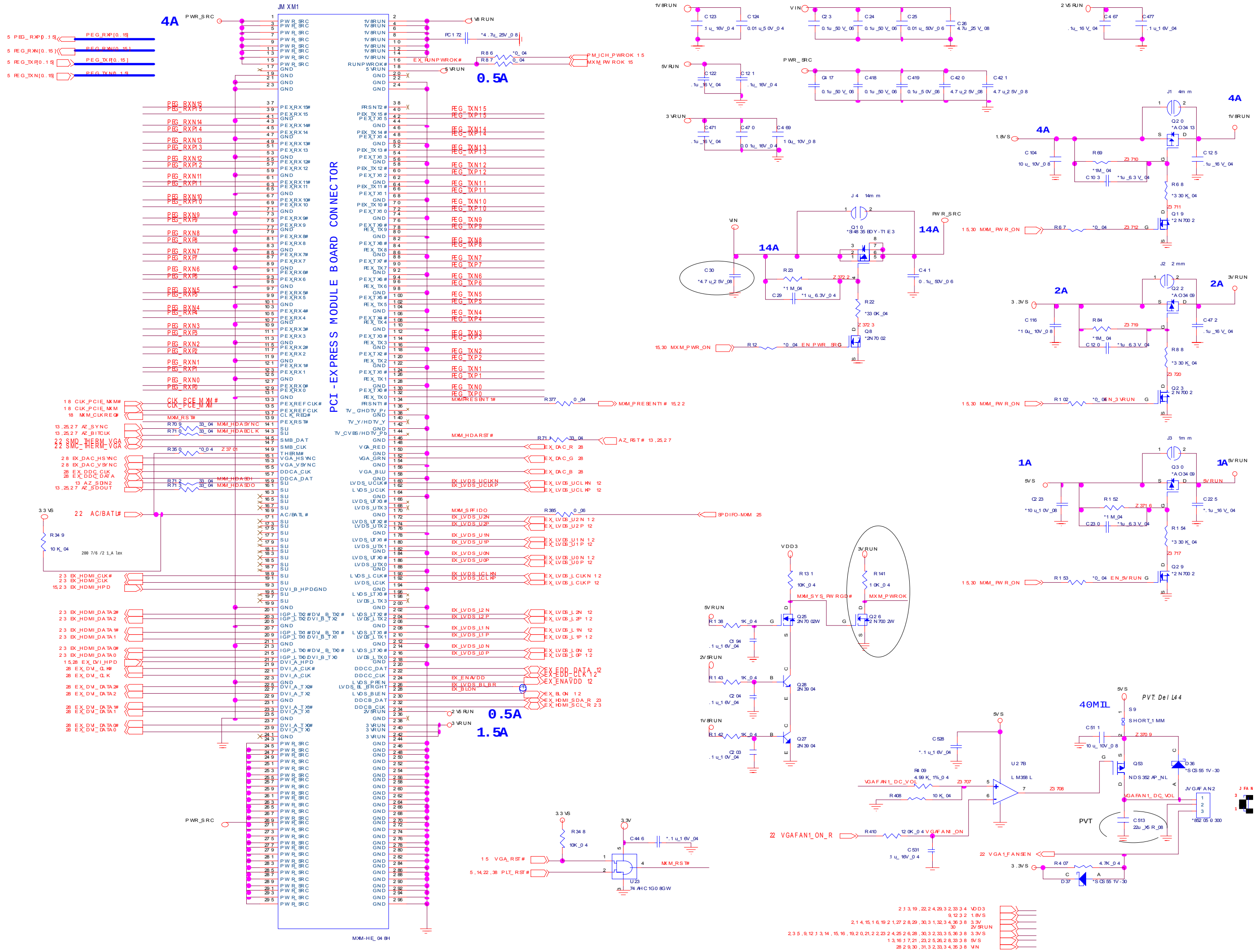
Mini Card/WLAN



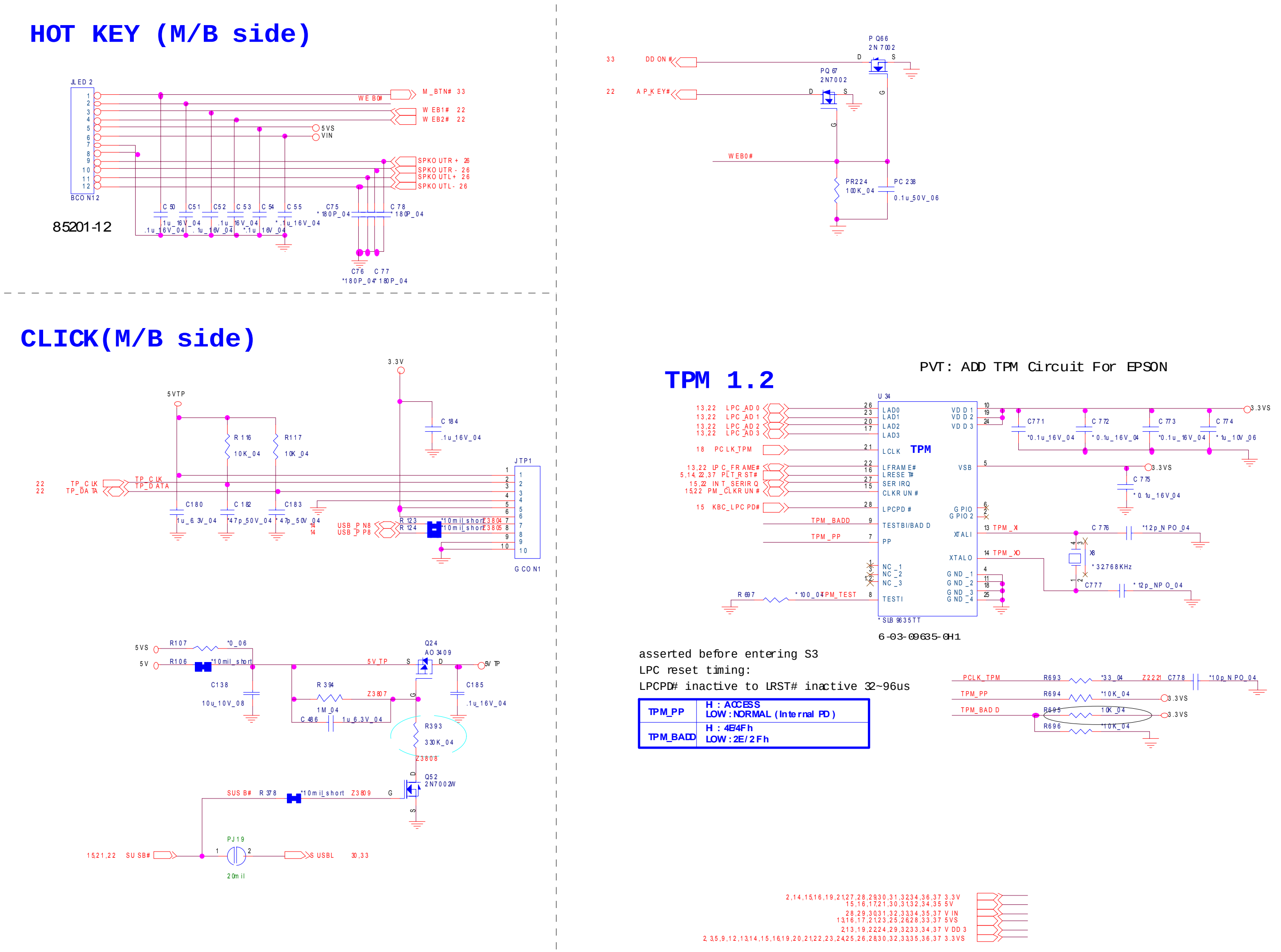
Sheet 36 of 42
Mini Card/WLAN

MXM PCI-E Type III

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MXM PCI-E Type III



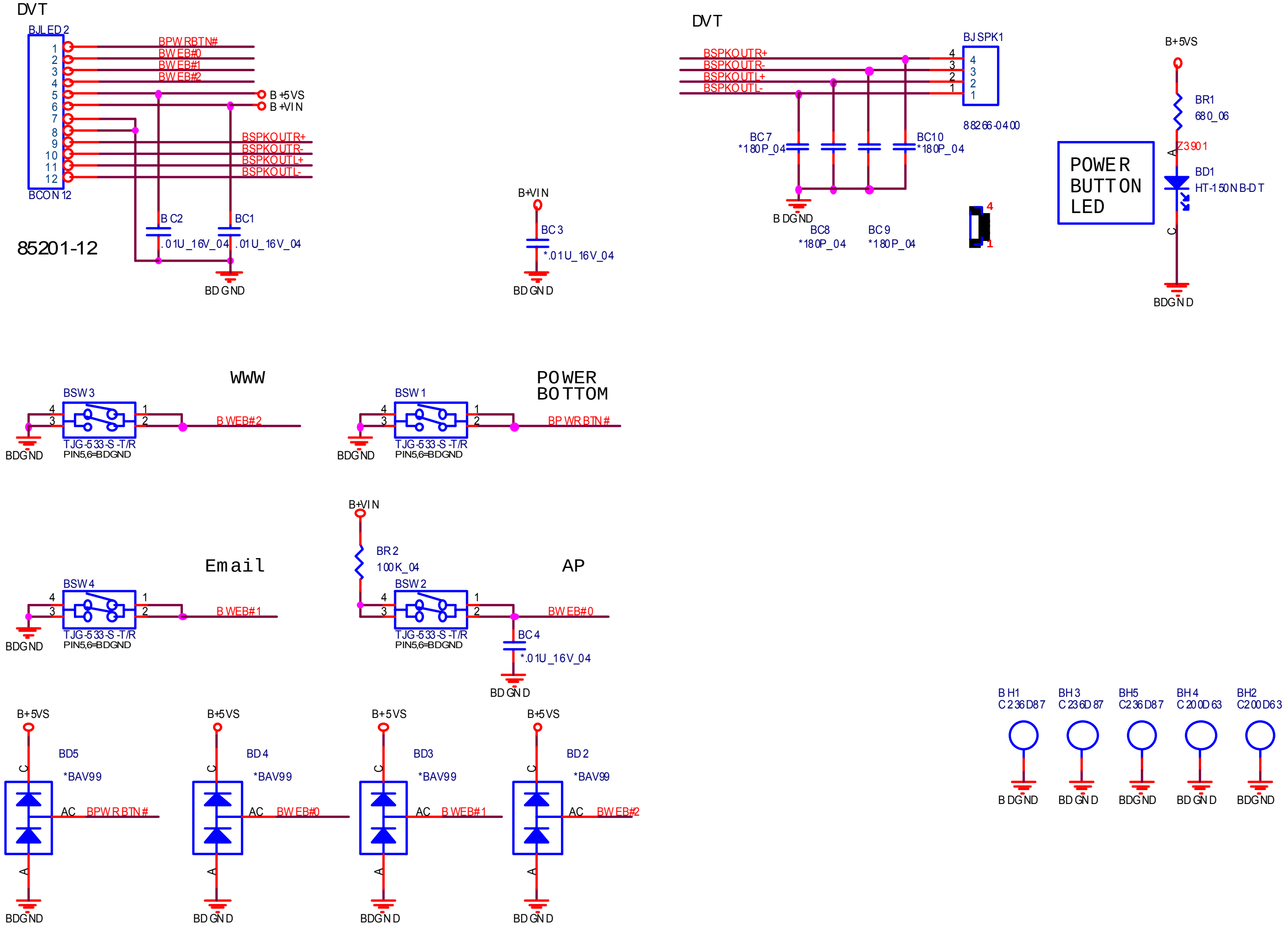
Board to Board CON/TPM



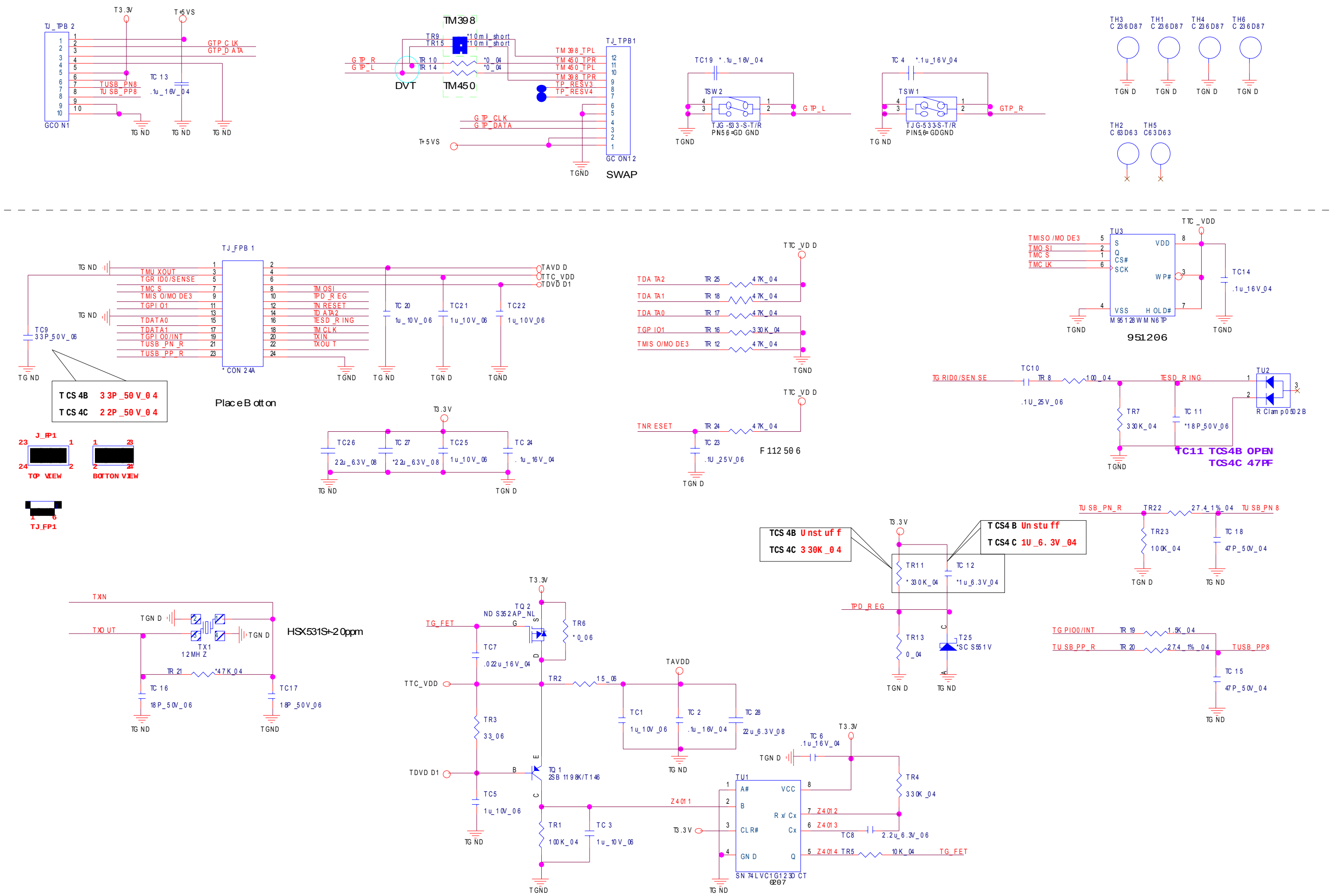
Sheet 38 of 42
Board to Board
CON/TPM

Button Board

Sheet 39 of 42
Button Board



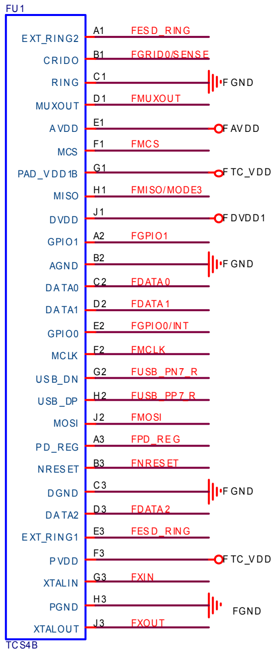
Click Board

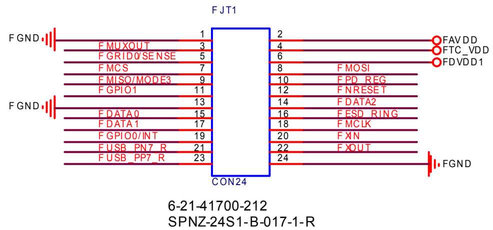


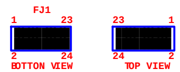
Sheet 40 of 42
Click Board

Finger Printer Board

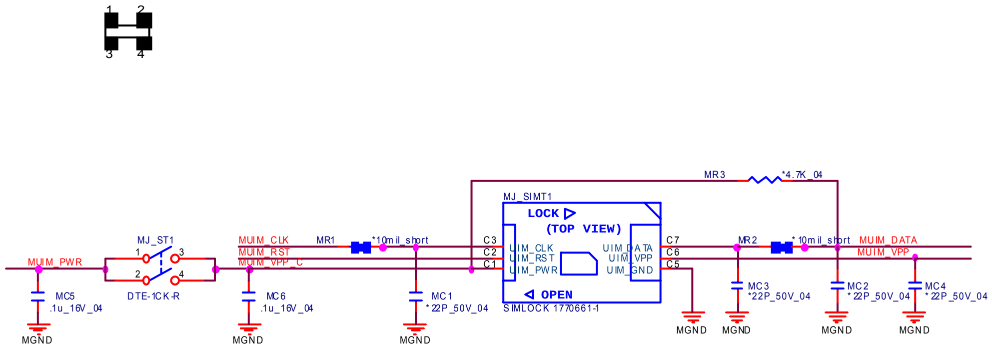
Sheet 41 of 42
Finger Printer Board

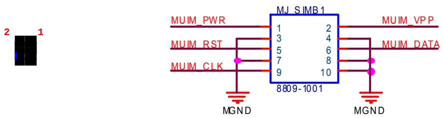


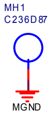




SIM Card Board







DVT:Chage Type

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SIM Card Board